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ORIGINAL ARTICLES.

HAIG'S URIC ACID THEORY.¹

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It may be taken as an axiom in medical philosophy that no therapeutic formulary is satisfactory, complete, or scientific which is not supported by a knowledge of the physiology and pathology of the processes that it is designed to modify, as well as of the bio-chemic effects of the remedial agents employed. In medicine, however, as in other inductive sciences, generalizations are made from the association of individual facts; and as here the number of accurately observed facts is wholly inadequate to the purpose, it is not surprising that in daily practice we apply, as inductions from ill-founded generalizations, therapeutic agencies that act in a manner we hardly know how on pathologic conditions we do not understand in the least.

The "practical man," falsely so called, is satisfied with getting results; the scientific physician rests not until the results are explained. The diagnosis and rational treatment of "organic" disease is a comparatively simple matter, for we have a tolerably fair though rough knowledge of the general functions of single organs and of the action on them of various agencies; but the diagnosis and rational treatment of "functional" diseases is a very different matter, for these imply an estimation of the normal, physical, and chemic changes in every living part of the body; they imply a consideration of the mutual relations of the living mechanisms, and also of those lines of misdirection that the working machine may take, turning what we call physiologic processes into what we indefinitely call pathologic ones. Indeed, the very term "functional" disease in pathology, like the expression "catalytic action" in chemistry, is perhaps itself merely the insignia of our ignorance.

It may be doubted if there is any manifestation of energy in the body that is not the outcome of organic change. For instance, Hodge² has found

that electric stimulation of the nerves entering the posterior spinal roots in kittens produces in the root-ganglia marked morphologic changes, easily recognized under the microscope, which disappear when the animal is allowed to rest a sufficient time after stimulation. Hodge has also discovered the interesting fact that in sparrows similar ganglionic alterations are found as a result of the ordinary fatigue of a day's activity. The evident conclusion is that even so evanescent and feeble a manifestation of energy as a nerve-impulse produces in the nerve-center an organic change that is none the less important because unrecognizable.

It is a significant observation of Musser's¹ that while in text-books of medicine small space is given to the consideration of functional as compared with organic diseases, in actual practice the former class of disorders, taken in a large sense, includes about four-fifths of the cases that come under care. It will be admitted on all hands that the truth in medicine will endure; that the false and unessential must gradually be sifted from it. We can only know as truth that which has been logically proved. When a writer treats in the same paragraph and in the same way facts that are proved and beliefs whose probability seems to him of such weight that he accepts them as proved facts, he not only displays a lack of scientific training and unfitness as a teacher, but he also throws actual obscurity on the subject that he attempts to illumine. Moreover, the assumption that the results of medical treatment prove the truth of the hypothesis under which the treatment was instituted is an error that is often as serious in its effects as it is common in practice. Clinical observation and therapeutic facts must go hand-in-hand; but in our present ignorance of physiology and pathology the results of treatment predicate no explanation of bodily changes.

There is a subject of the medicine of to-day that by its importance in pathology, by the frequency of the disorder and its far-reaching effects, has won deserved attention. It is the subject of lithemia, uric-acidemia, or what not, all names for it implying a morbid condition of which uric acid is the constant factor, if not the cause. The symptomatology of lithemia is about as complex for a physiologic disorder as is that of hysteria in mental disease. The pathology of the disease is the outcome of processes

¹ A paper read before the Arapahoe County Medical Society, June 13, 1893.

² Amer. Journal of Psychology, 1891, and Journal of Morphology, 1892.

¹ Address, Forty-second Session Medical Society of Pennsylvania.

of which we know almost nothing. The analogy of such chemic knowledge of physiologic reactions as we possess would indicate that the physiologic chemistry of lithemia is of appalling complexity.

There is no field in medicine in which it is more difficult to separate facts from beliefs than here. The unbiased investigator knows that in treading such an unknown wilderness as the living body any theory not supported on all sides by proved facts is practically certain to be erroneous.

It therefore seems not only excusable but desirable for us now and then, like a man lost in the woods, to stop and consider whether we are working on true lines—to number and weigh the facts supporting our theory—no matter how satisfactory this may appear to be.

It is hard to estimate the debt that medicine owes to Alexander Haig, if only for the energy and perseverance that have made him the latest prophet of lithemia. Already his work has had considerable influence among physicians, and everyone who reads his fascinating pages must feel a strong inclination to accept his sweeping generalizations, which ascribe to uric acid human disorders of every complexion—from gout to diabetes, and from the simple feeling of discontent to a suicidal melancholia.

The book published by Haig was the outcome of nine years' research, chiefly on the cause and treatment of headache, from which he was a periodic sufferer. In general, he found that on a meat-diet his headaches were intensified, while on non-nitrogenous food they diminished or disappeared. Further study led him to the conception of the close relationship of migraine to gout, and he conceived the idea that uric acid was the cause of the former, as of the latter. He accordingly began to estimate the uric acid eliminated from his own person, and found a constant difference between the proportion excreted during the period of headache and that passed before and after the attack. By easy reasoning he connected the concomitant symptoms of the headache, the slow pulse of high tension, the mental depression, the disinclination for exertion of mind or body, the cold surface and extremities, with the character of the urine and the amount of uric acid contained in it. He says, p. (3): "I soon found that in altering the uric acid I could alter the symptoms related to it; that when I produced an increased excretion with an alkali I produced the headache, mental depression, cold surface, slow pulse, and scanty urine, and that when I stopped the plus excretion with an acid I removed all these symptoms. . . . Then, I also noticed that in curing a headache by giving an acid to diminish the excretion of uric acid, I always produced a certain amount of pricking and shooting pain in my joints

(generally in those which had been most used on the day in question), and it naturally occurred to me that the uric acid was held back in those joints and produced the pains. . . . Since then I have found not only that an attack of gout can be produced by giving acid, but what I had observed was only a single instance of a general law, and that all substances which increase the solubility of uric acid increase its excretion in the urine, and do good in those joint-troubles which are due to its irritating presence; while, conversely, all substances which diminish the solubility of uric acid diminish its excretion in the urine, and also increase those irritations in the joints and other fibrous structures which are due to its presence. On such comparatively simple facts and observations the whole of my writings have been based, and as side issues I have been led to reason on the pathology of epilepsy, in some cases of which I have found exactly similar fluctuations in the excretion of uric acid to those met with in migraine, thus explaining a clinical relationship between these two diseases which had long been known and written about; also on the pathology of rheumatism and rheumatoid disease, the causation of Bright's disease, Raynaud's disease, and paroxysmal hemoglobinuria and anemia."

If Haig's conclusions are correct, we have seen the practice of medicine placed at one bound, in some of its most important relations, upon a mathematic basis, and Haig deserves to be mentioned with Hippocrates and Harvey. I do not pretend to dispute the clinical statements made by Haig, or even assail the accuracy of his methods. Whether the exhibition of a certain remedy has caused such or such modification of certain symptoms is a matter in which we can only accept the assurance of the observer. It is notorious, however, that widened therapeutic experience almost invariably cripples the quickly-gained reputation of new remedies, or of old ones applied in a new way.

In a preceding paragraph it has been asserted that any theory concerning physiologic processes which is not supported throughout by established fact is almost certain to be wrong. In examining Haig's work we are appalled at the intrepidity with which conclusions are drawn from premises established in his own consciousness. We are astonished that in a nominally scientific publication the statements of other authors that are in favor of his theories are accounted reliable facts, while many views that have a contrary tendency are not mentioned at all. The work is of a kind in which medicine might well be richer as an essay on the suggestiveness of certain fundamental data, while, at the same time, it is an example of a kind of medical literature of which there is far too much; in which a few plain facts are

so interwoven with ingenious hypotheses that the unwary reader is scarcely able to winnow one from the other.

Haig's reasoning is chiefly based upon an unwarranted assumption, which he by no means succeeds in proving, namely, that the ratio of formation of urea to that of uric acid in the body is constant. The untold complexity of the chemistry of the tissues and of the floating pabulum of the body has for him no difficulty, because he ignores it. The ratio of formation of urea to that of uric acid he estimates as thirty-three to one, though it may be said in passing that Salkowski and Leube put the ratio at fifty or sixty to one, and Landois at forty-five to one. This constant proportion in production being assumed, any variation from it in the urea and uric acid excreted must mean that that substance which is deficient in the urine is retained somewhere in the body.

Again, it is assumed that the urea is never retained in excess in the body, but that its excretion takes place *pari passu* with its formation. Therefore, according to Haig, as the ratio of excretion of uric acid to that of urea is demonstrably variable, the amount of uric acid within the body varies, and is at any time either above or below a certain mean quantity. This excess of uric acid may exist either in the blood or in the tissues. In the tissues the uric acid may either lie latent, not producing symptoms, as in the spleen; or, in certain situations, it may give rise to well-marked disturbances, as in the gout of joints. It is to the uric acid dissolved in the circulating blood that Haig ascribes most of the evils in his category. The proportion of uric acid in the tissues and in the blood is assumed, without proof, to depend on the relative alkalinity or acidity of the media, the precipitation of uric acid occurring in situations where the reaction is least alkaline, and where, it is assumed, it can be least readily held in solution.

Attention may here be called to the careful work of Sir William Roberts,¹ who concludes on experimental grounds that the uric acid of the circulation exists in the peculiar form of a quadriurate, having quite distinctive reactions and solubilities. He also adduces strong reasons for believing that it is the presence of an excess of salines, and not of an excess of acids, that determines the precipitation of urates, and for this reason the favorite location of tophi is in the joints. Again, though it is generally admitted by physiologists that the kidney-substance is peculiar in having an acid reaction, Landois² says that "the heart, liver, and kidney are rarely affected by deposits of uric acid." Absolutely no proof is offered by Haig of his therapeutic assumption that

the exhibition of acids clears the blood of uric acid by causing its deposition in the tissues, while the exhibition of alkalies causes the resolution of this precipitate and loads the blood with uric acid. Haig assumes, after only a cursory and altogether insufficient attempt at proof, that excess of uric acid in the blood determines an increased arterial blood-pressure by causing contraction of the peripheral bloodvessels. All the evidence of value that we have on this subject goes to show that vascular tension, so far as it depends on the chemistry of the blood, varies with the alkalinity of the fluid only. Any statement that it depends on the uric-acid contents is purely gratuitous.

Haig pays but little attention to the results of Roy and Sherrington,¹ who found that in the dog injection of alkalies into the circulation was immediately followed by a diminution in the volume of the brain—that is, produced vascular contraction—while the injection of an acid caused an increase of volume—vascular dilatation. In view of the fact that in the dog's economy very little uric acid is produced, and that, moreover, the effects are stated by Roy and Sherrington to immediately follow the injection, it certainly seems probable that the change in brain-volume is due to a direct action of the acid or alkali, and not to the diffusion of a hypothetical uric acid to or from the tissues.

Haig makes no reference to the well-nigh classic work of Gaskell,² who showed that the isolated frog's heart fed by a nutrient fluid containing one part in 20,000 of alkali has its tonicity increased, and may gradually come to rest in the phase of systole; the opposite effect and rest in diastole being produced by transfusion with minute doses of lactic acid.

It is easy to see the meaning and to grant the truth of the observation made by Sir Wm. Roberts,³ that the "arthritic incidents of gout may be said, not improperly, to be simply incidents pertaining to the precipitation of these crystals (sodium biurate) in the structures of the joints."

The *tissues* are the seat of bodily life, and their elements form the origin and destination of nerve-supply; and Haig runs counter to well-founded physiologic doctrine when he declares that in general uric acid is inert when deposited in the tissues, but provokes its manifold symptoms only when present in the circulating blood. In the light of modern physiology, the only conceivable way in which uric acid retained within the blood could give rise to symptoms, that is, effect the tissues, is indirectly by influencing the caliber of the blood-vessels and so modifying arterial pressure; but Haig takes the trouble to point out that alteration

¹ Brit. Med. Journ., 1892.

² Landois and Stirling's Text-book of Physiology, 1886, p. 470.

¹ Journal of Physiology, vol. xi, p. 85.

² Journal of Physiology.

³ Loc. cit.

of blood-pressure, *per se*, does not cause the symptoms in question, but that the presence of an excess of uric acid is a necessary feature (p. 117).

Haig lays great stress on the clinical observation, valuable in itself, that the amount of urinary water excreted varies inversely as the amount of uric acid contained in it. He considers this fact as the natural effect of an excess of uric acid in the blood, causing general constriction of the arterioles and consequent diminution of blood flow to the kidney. In support of this statement he inappropriately cites some experiments of Lauder Brunton, who caused in animals an increase of vascular tension and diminution in the flow of urine as the result of the injection into the circulation of certain drugs. It is well to mention that Roy,¹ when, by an ingenious apparatus, he directly measured the changes of volume in the living kidney, found that the curve representing the kidney-volume ran parallel with the curve of general arterial pressure—in other words, that the blood-supply of the kidney varied directly with arterial blood-pressure. He found, also, that expansion of the kidney was accompanied by an increased, and contraction by a decreased, flow of urine. Landois, quoting Heidenhain, states the remarkable fact that great changes in the caliber of the renal artery, experimentally produced, failed to alter greatly the amount of blood flowing to the kidney; he concludes in consequence, that the blood-supply of the kidney is proportional to the arterial pressure. Indeed, Haig himself finds it convenient to ascribe the excess of urinary water in certain forms of nephritis to high arterial tension. Haig makes use of the fact that in fevers the blood is less alkaline in reaction than in health, and assumes the uric acid produced during fever to be thrown down in the tissues, being afterward re-dissolved, causing the uric-acidemia of convalescence. He does not refer to the statement of Salkowski and Leube² that, in general, in fevers the excretion of uric acid is increased (pp. 102, 336, 461).

Haig makes the statement that bodily exertion and activity of the skin diminish the alkalinity of the blood and cause precipitation of its uric acid in the tissues. We would naturally expect as a consequence that among working-men—who, moreover, at least in America, eat a large proportion of meat in their diet—gout would be a frequent disease; this is notoriously not the case.

It would be interesting to weigh the evidence for Haig's confident assertion (p. 12) that uric acid is formed in the kidney. Much force is attributed by Haig to the announcement of Roberts that in the hours of the forenoon the blood is more intensely

alkaline than at other periods of the day. Haig draws the conclusion that, during this "alkaline tide," the blood is surcharged with uric acid that had been stored up in the tissues. If this belief were correct, we would expect to find the morning hours to be normally marked by those subjective feelings of depression and ill-being that Haig so well describes; but against this view we have the universal verdict of healthy mankind.

The criticism that applies to Haig's work, the unscientific confusion of facts and beliefs, is abundantly characteristic of most other writing on this subject. Haig is simply the most notable example of the false method. One cannot but wish that the spirit of Darwin were more common in medical writings. His patient search for evidence against his assumptions, his careful separation of fact from belief, would alone make his work an admirable addition to the medical school curriculum.

In the pathology of the uric-acid diathesis, Haig's main mistake has been in assuming that the ratio of production of urea and that of uric acid remain constant under all conditions. We know next to nothing of the physiologic chemic changes leading to the production of urea and uric acid in the body; we only feel sure in an obscure way that oxygen plays an important part in them. We know that the absorption of oxygen is a variable matter; and there is reason to think that oxygen, after entering the body, can be diverted from one use to another, according to the kind of food ingested, and possibly, also, under drug-action. That uric acid is a less oxidized compound than urea we know, because uric acid by oxidation may give rise to urea; but the most respectable physiologic opinion points to the conclusion that in the body urea is not the normal descendant of uric acid, but that the two bodies are the resultants of different chains of events. In fact, it has been plausibly suggested that the formation of uric acid in our bodies is a remnant of ancestral processes that were once extremely important, but now chiefly of historic and pathologic interest; as, for example, the vermiform cecal appendix appears to be in an anatomic sense.

It is the teaching of physiology that the nitrogenous excreta have two different sources of formation in the body. One is the so-called circulating proteid, which is variable in amount and feeds, but forms no part of, the living tissues, and the other is the living tissues themselves. It seems highly probable that the pathology of the circulating proteid represents a different set of conditions than that of the tissue proteid. We know that proteid in the food is chemically changed in the alimentary canal, giving rise to a long series of compounds of different character; and these, again, are produced in variable ratios, depending on the nature of the

¹ Journal of Physiology.

² Die Lehre von Harn.

food and the activity of the digestive organs. Of the complexity of these digestive changes anyone will be convinced who will read the work of Kühne and Chittenden on the chemistry of digestion. As to the further history of these products after their absorption into the body, we can only speculate.

It may be accepted as a physiologic fact that every kind of food-matter—proteid, carbo-hydrate, or fat—besides having its own intrinsic food-value by reason of the chemic potential energy locked up in it, also exerts on the organism a sort of drug-action by which it modifies the vital processes of protoplasm. This statement is a deduction from a long array of physiologic observations that it would be tedious to survey, but it is manifestly an important consideration in practical dietetics.

We can imagine two ways in which diseases not due to the introduction of morbid agents into the body may have their origin, both due to certain physiologic errors of working: 1st. Errors of formation, by which is meant that the chemic changes of the healthy body either do not occur with normal intensity, or that they proceed along lines of disintegration somewhat different from those that are usual, and result in the formation of chemicals that are poisonous to protoplasm; it seems highly probable that oxygen plays the most important rôle in this altered metabolism. 2d. There are errors of elimination in which, owing to sluggishness of blood and lymph circulation, retardation of the diffusion-currents through the tissue-elements, waste products, poisonous when in excess, are heaped up in, and interfere with the function of, living matter.

It has been generally held that uric acid is the responsible factor in producing the disturbances represented under the title of lithemia. Attention has already been called to the conservative observation of Roberts, according to which the influence of uric acid in gouty joints has simply mechanical significance. However convenient a clinical sign excess or deficiency of uric acid in the urine may be, it is at present utterly fallacious to accept uric acid as the cause of physiologic disturbance. We estimate the vitiation of respired air by the percentage of carbon dioxid contained in it; yet it is well known that air which has been breathed does not acquire its peculiarly noxious qualities from the carbon dioxid in it, but from an as yet unknown, organic constituent occurring in trifling amount. So in the uric-acid question, it is quite possible that the dangerous products are the results of changes of which the formation or accumulation of uric acid in the body is only a concomitant and not an essential factor.

My endeavor has been not to obscure this question, but only to make plain, if possible, some of the difficulties to be overcome and the futility of

leaning too heavily on theories supported by data of which we know next to nothing. This is an almost untrodden field for physiologic and pathologic experiment, and herein must the problem receive its final solution, which can only be reached through the directing thoughts that must arise from long-continued and exact clinical observation.

HYSTERICAL APHONIA.

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THIS not uncommon manifestation of hysteria is characterized by an inability of the adductor muscles of the larynx to place the vocal bands in position for phonation. Unlike true paralysis of the adductors, however, there is present a functional and not an organic pathologic condition of the nerves controlling the muscles of adduction.

In phonation, the arytenoid cartilages, to which the vocal bands are attached, are approximated and rotated inward and the glottis is reduced to a narrow slit. In paralysis of the adductors, or in the hysteria which simulates this form of paralysis, this narrowing of the glottis does not take place, hence the loss of voice.

Hysterical aphonia, like other forms of hysteria, is found chiefly in young women of a neurotic temperament, and cases are very rarely presented in which other manifestations of hysteria are not observed. The voice is lost, but the patient is able to communicate in a whisper. If the larynx be examined with the laryngoscope, it will be observed that, during attempted phonation, the vocal bands approximate, but not sufficiently for vocalization.

As the name implies, there is in this affection simply a loss of voice, characterized by an entire absence of any inflammatory process or of any organic condition as a cause of the aphonia. It should not, on the other hand, be considered a mere counterfeit on the part of the patient, to excite sympathy; this is very rarely the case.

Hysterical aphonia comes on suddenly, and is sometimes paroxysmal in character, as in other forms of hysteria. Sometimes it is occasioned by fright. The diagnosis of this condition is not difficult if the laryngoscope be used and all of the features of the case are carefully examined. Before concluding that we have before us a case of hysterical aphonia, we must carefully exclude other conditions in which aphonia may be present as a symptom. These are bilateral paralysis of the adductor muscles, bilateral paralysis of the recurrent laryngeal nerve, the presence of a foreign body or tumor, or cicatricial adhesions mechanically interfering with the movements of the vocal bands, some forms of acute and chronic laryngitis, and destruction of the vocal bands.

By means of the laryngoscope the presence of a foreign body, a new-growth, or extensive ulceration of the vocal bands, may be ascertained without difficulty, and acute and chronic laryngitis of sufficient intensity to cause aphonia may be recognized by the conformation and color of the bands and of the adjacent parts.

Bilateral paralysis of the adductors is an exceedingly rare affection, the only cases, five in number, having been reported by Mackenzie, and the diagnosis of these cases is not beyond question. Bilateral paralysis of the recurrent laryngeal nerve is also very rare. In both of these affections, if the laryngoscope is used, the vocal bands will be found widely separated, assuming the "cadaveric" position.

Although there is usually more mobility of the vocal bands in hysterical aphonia than in these two affections, still the differentiation between them by means of the laryngoscope alone would not always be easy. In the attempts at vocalization, however, we find a marked difference. In hysterical aphonia the whisper is natural, but in bilateral paralysis of the adductors, and in bilateral paralysis of the recurrent laryngeal nerve, the whisper is labored, with marked phonatory waste, due to the inability of the patient to approximate the vocal bands. Cough is frequently present in hysterical aphonia, but is never found in true paralysis, as this act necessitates the approximation of the bands. In a doubtful case the administration of chloroform will clear the diagnosis, as the first stage of the anesthesia will bring out the voice, unless true paralysis exists.

The prognosis in cases of hysterical aphonia is good, especially in recent cases. In long-standing cases certain atrophic changes may take place in the muscles, as a result of disuse, but even these cases yield to careful treatment.

The treatment should be both constitutional and local. Constitutionally, arsenic, strychnin, iron, valerian, or the bromids, should be used according to the indications of the case. The influence of ovarian or uterine disease should not be overlooked. The local treatment depends upon whether the case is acute or chronic. In recent cases I have had excellent results from using the faradic current applied externally to the neck. The patient, having been assured that the treatment will absolutely restore the voice, is directed to count from one to ten while the current is passed through the neck, the electrodes being applied on each side of the larynx. Each time that the patient counts, which she will do in a whisper, the current is increased in intensity, the patient being urged, at the same time, to use all her efforts to raise her voice. After a few attempts the voice usually "breaks," and a sound above the whisper is heard. If it be deemed advisable, the treatment may be continued on the following day,

although in many cases the voice may be restored in one sitting. If more than one sitting is required, the applications should be carefully continued until some improvement is observed over that of the preceding visit. In chronic cases the treatment is essentially the same, except that the improvement is usually much slower. In these cases, in addition to the faradic applications, the galvanic current should also be used, on account of its tonic effects upon the muscles which have been weakened from disuse. The negative electrode should be applied within the larynx, and the positive electrode externally over the larynx.

CASE I.—Mrs. F., a lady of thirty-two years, had become frightened by the fall of her child. She had fainted, and when she recovered consciousness could speak only in a whisper. I sent for my portable faradic battery, and applied the current in the manner described, with the result of a complete and permanent restoration of the voice.

This case is mentioned only as an example of the acute cases. They are quite frequently met with.

CASE II.—Miss Ella J., forty-one years of age, had suffered from aphonia for eighteen years. After having shown other manifestations of hysteria for about one year, she suddenly lost her voice, being able to speak only in a whisper. After having been treated for some months without success, she was told that change of climate was necessary. She remained away for six months without any change in her condition. On her return treatment was again commenced, but discontinued after three months, the patient being still able to speak only in a whisper. She spent six months of each year at various summer resorts. During the eighteen years of her aphonia she had yielded at different times to the solicitations of her friends, and had consulted a number of physicians without, however, recovering her voice. After the age of thirty-two the patient rarely exhibited other manifestations of hysteria.

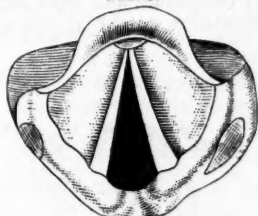
When I first saw this patient my impression was that the case was an illustration of those rare cases of bilateral paralysis of the adductor muscles of the larynx, or of bilateral paralysis of the recurrent laryngeal nerve, but a careful examination enabled me to exclude these diagnoses.

A physical examination of the chest gave negative results as to the presence of an aneurism or enlarged glands. The quiet and natural sound of the whisper was very unlike the labored whisper of true paralysis, and there was no phonatory waste. A laryngoscopic examination showed the mucous membrane of the larynx to be somewhat anemic, but I could find no evidence of any pathologic condition. There was a certain degree of mobility of the vocal bands, but they could not be approximated sufficiently for phonation. (Fig. 1.)

After examination I stated to the patient and her sister that I did not consider the disease incurable, but that it would require persistent treatment for at least three months. As they agreed to submit to the trial the following plan of treatment was car-

ried out: Every morning an internal laryngeal electrode was introduced into the larynx, and a galvanic current of one milliampère passed through the parts, the positive electrode being applied externally over the larynx. At first this was practised for only a few seconds at a time, but later the patient was able to tolerate it for several minutes. Every afternoon the faradic current was applied externally, the patient counting from one to ten during each application.

FIG. 1.



Functional paralysis of the adductors. Laryngeal image during phonation.

FIG. 2.



Normal laryngeal image during phonation.

For twenty-three days the applications were made mornings and evenings without any perceptible improvement in the voice. On the twenty-fourth day, however, the patient phonated for the first time, the sound being made as she repeated "eight, nine, ten." In spite of my efforts it was seven days before she again uttered these numbers aloud. After this I succeeded in obtaining a sound every two or three days until the forty-fourth day, after which no day passed in which the patient did not count some of the numbers aloud. My efforts were now directed to increasing the numbers which she could pronounce, and on the fifty-first day the patient for the first time counted from one to ten aloud. The voice was at first weak and wavering, but soon increased in strength, and the patient also occasionally spoke a few words aloud at home.

After the sixtieth day the visits were reduced to once daily, the galvanic current being applied first and the faradic current immediately afterward. She now counted without difficulty, and spoke frequently at home, but complained that she would "get out of breath" while speaking. This symptom gradually disappeared, and on the eighty-fourth day the patient was discharged, cured.

CASE III.—This is perhaps one of the most unique cases of hysteria of the larynx on record. The only similar case which I find recorded is

one reported by Mechede¹ as bilateral paralysis of the abductors of the larynx. In this the dyspnea was so great that preparations were made to perform tracheotomy to prevent suffocation, when the patient suddenly recovered from her condition. In my own case, however, the dyspnea was so great that tracheotomy was actually performed, and not rashly, but after a deliberate consultation of four physicians.

On December 9, 1892, I was called by my friend, Dr. W. E. Brickell, to see a case of dyspnea in which asphyxiation seemed to be imminent. The patient was a young lady, twenty-two years of age, and a candidate for sisterhood in a convent. When seen the symptoms were not quite so alarming as they had been the preceding night, but still the dyspnea was very great, and the loud stridulous inspirations could be heard at a considerable distance, while the patient gasped with every breath. The voice had disappeared and the patient spoke in short, jerky whispers. The temperature was normal and the pulse 98°. Examination of the neck showed a cicatrix resulting from a former tracheotomy.

The following was the interesting history of the case given me by Sister C., a lady of unusual intelligence, who had attended the patient during her previous illness:

Miss G. had an attack of influenza in January, 1892, while at Milwaukee. She was confined to bed for five days, after which she resumed her duties as usual. In February she had a second attack, and a few days later lost her voice, being unable to speak, except in a whisper. Various remedies were administered without, however, restoring her voice. On March 24th a throat-specialist was called in, who, evidently surmising the hysterical nature of the affection, made an application of electricity to her throat and stated that she would soon recover her voice. I was unable to ascertain the manner in which the electricity had been applied, but presume that it must have been an external application of the galvanic or faradic current. At 10 o'clock of the same night alarming symptoms of dyspnea began to develop; the breathing became gasping, and the stridulous inspirations could be heard at a considerable distance. The nearest physician was hastily summoned, and he pronounced the trouble hysteria and ordered potassium bromid. As the symptoms became more distressing the physician whom she had consulted during the day was sent for, and he found the condition of the patient so alarming that he at once called for a consultation. At this consultation there were present four physicians, who pronounced the case as one of paralysis of [the abductors of (?)] the larynx. The condition had now become so grave that asphyxiation seemed imminent, and preparations were at once made to perform tracheotomy. On account of the condition of the patient it was considered dangerous to administer chloroform or ether, and the operation was performed without the use of an anesthetic. In spite of this, however, the patient appeared as

¹ Berliner klin. Wochenschr., 1878, No. 17.

insensible to the pain as if the operation were being done upon a cadaver. A tracheotomy-tube having been inserted the breathing became easier. The air of the room was kept moist and at a temperature of about 80° F. There was a slight elevation of temperature following the operation. The patient's respirations, however, were so weak that she could not expel the mucus which accumulated in the tracheotomy-tube, and this had to be kept constantly clear with a feather to prevent symptoms of suffocation.

The tube was left in position for twelve days. On its removal the breathing was unimpeded, but there was still aphonia, the voice not returning until five days later. Ten weeks later there was another but milder attack of dyspnea, which subsided in three days under the administration of pil. sumbul comp.

Miss G. was now sent to her parents, where her health improved, and there were no further symptoms of aphonia or dyspnea. Her urgent solicitations to return to the convent were acceded to, and in September she was sent to the convent at Chattowa, La., where she took charge of a small school. Ten weeks afterward she again lost her voice, which returned under the use of the compound sumbul pills.

In November difficulty in breathing again developed, and the patient was hastily sent to the convent at New Orleans for treatment. Dr. Brickell, the attending physician of the convent, was sent for, who prescribed quinin valerianate every four hours. The following day, the symptoms being still distressing, strontium bromid was ordered.

Desiring to demonstrate the hysterical nature of the attack, Dr. Brickell administered chloroform. During the first stage of the anesthesia the appearance of the patient became so alarming that the administration of the chloroform had to be discontinued, and every effort directed to prevent the asphyxiation that appeared imminent. The last rites of the Church were administered.

Early the following morning Dr. Brickell called me in consultation.

I had the patient placed in a chair and made a careful laryngoscopic examination. The first glance showed the cause of the dyspnea. With each inspiration the vocal bands, instead of separating, and leaving the triangular opening of the glottis, were drawn together, and gave rise to the stridulous inspiratory sound.

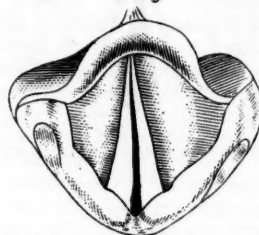
The alarming appearance of the patient, the duration of the attack, and the fact that tracheotomy had been performed on the patient during a similar attack, suggested that the case before me was one of true paralysis of the abductor muscles of the larynx, but a more careful examination, with a consideration of all of the features of the case, enabled me to exclude this diagnosis.

In the first place, all of the milder attacks were evidently of hysterical origin. We had also to consider the fact that, although the vocal bands were in apposition, as required for vocalization, aphonia existed, and, in true paralysis of the abductors the voice is altered, *but there is no aphonia*. The present attack occurred during the catamenial period, and the former violent attack had likewise taken place during

a similar period. The laryngoscopic image (Fig. 3) also was not characteristic of true paralysis. Instead of the vocal bands, on inspiration, remaining lifeless or making feeble attempts to increase the glottic space, they were really drawn together with each inspiratory effort, resembling more a spasm of the adductors.

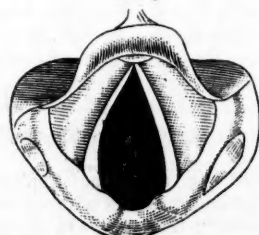
I therefore made a diagnosis of functional paralysis of the abductor muscles of the larynx. In view, however, of the serious termination of the previous attack, and as, moreover, the patient's condition appeared very dangerous, and more alarming symptoms of asphyxiation might appear again at any

FIG. 3.



Functional paralysis of the adductors. Laryngeal image during inspiration.

FIG. 4.



Normal laryngeal image during inspiration.

time, I advised that the patient be sent to the Eye, Ear, Nose, and Throat Hospital, so that, should I be wrong in my diagnosis, and the case really demanded it, tracheotomy could be performed without delay.

My advice was followed, and the patient was at once conveyed to the hospital. Here Dr. H. W. de Roaldes, surgeon-in-charge, saw the patient with me, and agreed with my diagnosis.

Strychnin sulfate and dilute phosphoric acid were administered three times daily. Electricity, according to the method of central galvanization, was applied twice daily. Sulfonal was given at night, under the influence of which the patient slept, and, *during this time, the breathing became quiet*, the stridulous breathing, however, returning as soon as the patient awoke.

Under this treatment the dyspnea disappeared on the fourth day, and the laryngoscopic examination showed the normal movements of the vocal bands. Aphonia, however, still existed, for which I used the method of external faradization of the neck, as described. The third application was followed by

complete restoration of the voice, and the patient was sent back to the convent.

I informed the mother superior of the convent that, in my opinion, Miss G.'s health was not adapted to the restrictions and duties of the sisterhood, and advised that she should be permanently sent back to her parents. This was according done, and the young lady's health has since then been excellent.

136 GRAVIER STREET.

THE RESULTS IN NINETY CASES OF PULMONARY TUBERCULOSIS TREATED AT THE WINYAH SANITARIUM AT ASHEVILLE, N. C., FROM MAY 1, 1891, TO MAY 1, 1892, WITH A COMPARISON OF RESULTS OBTAINED WITH AND WITHOUT THE USE OF TUBERCULIN.

BY KARL VON RUCK, M.D.,
ASHEVILLE, N. C.

In a paper presented to the American Medical Association, May 7, 1891, I reported my first series of 25 cases treated with tuberculin during the winter of 1890 and 1891. Of cases in the early stage, which I designated as Class A, I had 5, of which 3 were reported as apparently recovered, 1 as greatly improved, and 1 as improved.

Of cases in the middle stage, which I designated as Class B, there were 7 treated. Of these, 4 apparently recovered, 2 improved greatly, and 1 improved.

Of the cases in the third stage, designated Class C, there were 13 treated; of these, 4 were greatly improved, 6 were improved, 1 was slightly improved, and 2 were not improved.

During April of this year, two years later, a careful inquiry was made by correspondence with the patients, their friends or their physicians, as to their present condition, the object being to learn the permanency of the results obtained and the outcome of the cases after a period of two years.

The results of this inquiry were presented in a paper read before the American Climatological Association on May 26th, and were as follows:

The 5 cases belonging to Class A (early stage) have all recovered and report themselves perfectly well in every way.

Of the 7 cases belonging to Class B (middle stage), 6 have made a final recovery and reported themselves perfectly well, while 1 case relapsed, was treated again, and was again greatly improved.

Of the 13 cases belonging to Class C (advanced stage), 3 are still greatly improved, 3 others remain improved, and 7 have died. This gives, at the end of two years, among cases in the first stage, 100 per cent. of recoveries; among those in the second stage, 86 per cent. of recoveries and 14 per cent. with improvement; and in the last stage, 46 per cent. with improvement.

I desire now to report 36 additional cases treated with tuberculin between May 1, 1891, and May 1, 1892, and to show their condition at the time of their discharge, and also to give the results obtained in 54 other cases not treated with tuberculin, but otherwise managed and cared for exactly in the same way as were the 36 patients who received treatment with tuberculin additionally.

Before proceeding with these reports, permit me to state my general experience with tuberculin and my position as to the use of the remedy from the beginning to the present time.

When in Berlin in November, 1890, I protested there against the manner of employment of the remedy, especially against the use of doses that induced general symptoms, such as fever, severe aching, headache, nausea, loss of appetite, etc., and which were called a reaction; and immediately on my return to this country I warned the profession, in three or four short articles, against doses that were followed by such symptoms; and although I did not then know that the remedy would or could determine beneficial effects in doses that caused no such disturbances, I felt that the first consideration was to find a safe mode of administration.

My protests were, however, little heeded, and the sad experience with this remedy is common knowledge, especially in the advanced stage of the disease, to which its use was largely confined, because cases at an early stage held aloof after realizing that tuberculous patients did not all get well as was expected, and that deaths from pulmonary tuberculosis continued to occur as before.

The public press, which had raised false hopes among patients and their friends, reported cases of death, in which tuberculin had been given, in a manner which soon checked the enthusiasm. "Took Tuberculin and Died" was a frequent heading of such newspaper items. Those of the profession who had used the agent in large doses were necessarily disappointed, and those who looked on and watched became doubtful at first, and prejudiced next; so that, after the lapse of a few months, the patients themselves feared the remedy and would not have it administered except as a last resort; while the profession, with but few exceptions, absolutely condemned it as dangerous and useless, without even having given it a trial.

This stage was practically reached when I reported my first 25 cases.

Constant communication with the source of origin of the remedy, and the good results obtained by such men as Stricker, Langenbuch, Schmitt, Thorner, Schede, and others, assured me, however, that my results were, at least in a measure, due to the remedy; the more so, as, in my past experience, I had not seen as good and satisfactory improvement and

recoveries from other measures. At this pessimistic stage, disbelievers in the remedy attributed my reported results to climatic and general treatment and to the care and supervision of these patients while under treatment, and the prevalent prejudice forced me to restrict the use of the tuberculin to such patients as themselves requested it, and then only after obtaining the consent of the physician who had sent the patient to me.

Under such restriction the remedy was, from May 1, 1891, to May 1, 1892, further applied in 36 cases. During this period 54 patients were treated without it. The classification into stages is made as nearly alike as possible for both series of cases. In each case treated the sputum contained tubercle-bacilli.

REPORT OF 90 CASES OF PULMONARY TUBERCULOSIS

Treated at the Winyah Sanitarium, Asheville, N. C.

From May 1, 1891, to May 1, 1892.

36 cases treated with tuberculin.

Class.	Number treated.	Apparently recovered.	Per cent.	Greatly improved.	Per cent.	Improved.	Per cent.	Slightly improved.	Per cent.	Stationary.	Per cent.	Worse.	Per cent.
1st stage	6	5	83.3	1	18.7	...	...	...	...	...	...	...	...
2d "	15	8	53.4	6	40.0	1	6.3	...	...	...	...	...	...
3d "	15	...	...	7	46.6	5	33.3	2	13.3	1	6.3	...	...
Total	36	13	36.1	14	38.9	6	16.6	2	5.5	1	6.3	...	...

54 cases treated without tuberculin :

Class.	Number treated.	Apparently recovered.	Per cent.	Greatly improved.	Per cent.	Improved.	Per cent.	Slightly improved.	Per cent.	Stationary.	Per cent.	Worse.	Per cent.
1st stage	6	2	33.3	3	50.0	1	16.6	...	...	...	...	...	...
2d "	14	2	14.1	6	42.8	5	35.7	1	7.0	...	...	...	...
3d "	34	...	...	3	8.8	12	35.3	11	32.3	4	11.1	4	11.1
Total	54	4	7.7	12	22.3	18	33.3	12	22.3	4	7.4	4	7.4

In Class A, I include all cases having one or both upper lobes involved, but without destructive changes and with the general health comparatively good. In class B, I include cases with circumscribed softening or cavitation, but still in fair physical condition. In Class C, the local disease was still further advanced, with more extensive breaking down and larger cavities, and with considerable constitutional impairment. If any doubt arose as to the proper classification, the patient's general condition determined the choice.

The average duration of the treatment was 152 days in cases treated with tuberculin, whereas it was 178 days in cases that did not receive tuberculin. Cases treated for less than a month are excluded from both classes, as are also such as arrived in such a condition that the case was absolutely hopeless.

Cases reported as apparently cured were free

from all subjective symptoms; there was entire cessation of cough and expectoration, and the last specimen of sputum examined did not show the presence of tubercle-bacilli. In other words, there was apparently an entire restoration to health. Locally, beyond the evidences of more or less retraction of the affected portions of lung, there was no other evidence of the tuberculous process.

As greatly improved, I report all cases in which the tuberculous process seemed to be arrested and in which the subjective symptoms subsided to a degree that but slight morning cough or expectoration remained, the patient regaining his general health. I have no doubt that ultimately some of these cases will completely recover. This could probably have been brought about by further treatment; but such patients are, as a rule, unwilling to remain longer and are satisfied to take their chances for the future, so long as they feel perfectly well.

The terms "improved" and "slightly improved" are relative and depend upon a comparison between the conditions found on admission and those shown at the last examination. All patients reported as improved showed a gain in weight and strength. Of those treated with tuberculin (with the exception of one in Class C, reported stationary, who had made a gain of 3 pounds and lost it again), all gained in weight. The greatest gain was 31 pounds, the least gain, 2 pounds, with an average, for the first stage of 9 pounds; for the second stage, of 13½ pounds; and for the third stage, of 5¾ pounds. Of the patients treated without tuberculin, 39 gained in weight between 1½ and 26 pounds; in 8 others there was but a slight gain; in 9 cases there was a loss. The average gain in weight in cases in the first stage was 10¼ pounds; in cases in the second stage, 6 pounds; and in cases in the third stage, only 3½ pounds.

Comparing now the results, we have 6 cases in the early stage in each series, but we find that, with the addition of tuberculin to the treatment, 5 patients have apparently recovered and one has been greatly improved, while, without the remedy, there were only 2 recoveries, with 3 cases greatly improved and 1 improved. Still I consider the results practically the same, for I have no doubt that, by a continuance of the treatment in the cases that did not receive tuberculin, three greatly improved cases would eventually have recovered. There is, however, this difference, that the average duration of residence in the Sanitarium of the patients in the early stage receiving tuberculin was 133 days, whereas it was 184 days in those that did not receive tuberculin, and a completion of the treatment in the greatly improved cases would increase the difference still more. In the second stage, Class B, the utility of tuberculin appears

much greater and a greater saving in time is also manifest.

There were 53 per cent. of recoveries under tuberculin against 14 per cent. without it, and the difference in the improved cases is also equally manifest.

The average residence in the institution of the patients taking tuberculin was 138 days, as against 189 days for patients that did not receive it.

No real recovery resulted in either series of cases in the third stage. Under tuberculin there were, however, 46 per cent. at this stage greatly improved, while without the remedy there were only 9 per cent. greatly improved, and 35 per cent. improved, showing more than twice as good results from the use of tuberculin.

The average duration of treatment in the third stage in the institution under tuberculin is greater than for those who did not receive it; but this is owing to the fact that, on account of the less satisfactory progress of patients that did not receive the remedy, some of them became discouraged and returned home, whilst the patients having tuberculin were highly pleased and satisfied, and therefore remained longer.

From the evidence accumulated during two and one-half years' use of the remedy, and from the results obtained in my first series of 25 cases and those of the 36 cases reported in this paper, I believe myself justified in claiming that tuberculin has been a great aid in my work, and having seen no unfavorable effect whatever from its administration upon the plan described by me,¹ I believe myself justified in recommending its use, not only in the earlier but in all stages of pulmonary tuberculosis, when no contra-indication exists.

As the chief contra-indication to treatment with tuberculin, I consider the existence of septic infection, and the fever due to it, which, unless controlled by other means, necessarily leads to exhaustion of the patient. Tuberculin has no power over such processes, nor over many other complications that may arise in the course of chronic pulmonary tuberculosis, and no effects must be expected from it except in the purely tuberculous affection that has not advanced to the stage of breaking down.

From private information recently received it appears that Dr. Koch has by no means abandoned his endeavors for the improvement of this specific remedy for tuberculosis, and a substance is now being tested in the Institute for Infectious Diseases, in Berlin, which is eventually to supersede the present tuberculin. This is not given by inhalation, as reported in the journals, but is administered subcutaneously in the same way as tuberculin is now

given, but it will not be presented to the profession until its advantage over the present tuberculin is clearly established in the clinical department of the Institute.

I have seen no advantage in Hunter's modification, and its use requires the same circumspection as does the original remedy, while it seems less constant in its composition and effect.

Neither was there any important advantage derived from the modification of Klebs, and I have come to the conclusion that if tuberculin is to be used at all, the original remedy, with which we have now the greatest experience, both as to its dangers and benefits, is the preparation to be employed.

CLINICAL MEMORANDUM.

REMOVAL OF THE GASSERIAN GANGLION.

BY CLAYTON PARKHILL, M.D.,

OF DENVER, COL.:

PROFESSOR OF PRINCIPLES AND PRACTICE OF SURGERY AND CLINICAL SURGERY IN THE UNIVERSITY OF COLORADO; VISITING SURGEON TO THE ARAPAHOE COUNTY, ST. LUKE'S, DEACONESS' HOME, AND ST. ANTHONY'S HOSPITALS, ETC.

THIS history of a case of excision of the Gasserian ganglion was, at the time of operation, the first of its kind in Colorado. There were but three cases on record in America and five in Europe. The patient was referred to me at the Arapahoe County Hospital from the service of Dr. Eskridge, and the following history is clipped from his case-book:

Mary E. H., aged sixty, a native of Ireland and married, has been in the United States since her eighth year. She has lived in Colorado seventeen years. The family history is unimportant, except that there is a record of rheumatism on the father's side. The health in childhood was good and remained so until her twenty-eighth year, three years after her marriage, when she began to suffer from rheumatism. This affected the joints, especially the distal ones of the fingers. All these joints of the right hand are distorted by local deposits, except the thumb, but none of the other joints of this hand is affected. The distal joints of the index, middle, and ring fingers of the left hand show deposits. The larger joints of the extremities have occasionally been the seat of pain, but none of them except the left ankle is enlarged. From her thirty-eighth year to her fifty-second, she suffered considerably with these rheumatic pains. Eight years ago the first division of the fifth nerve on the left side began to be the seat of great pain. Soon afterward the second division became involved, and three years ago the third division. Eight years ago the second division of the nerve was excised at its exit from the infraorbital foramen. This gave relief for about five months. A second operation was then performed, in which all three divisions were excised at their exit from their respective foramina. This gave relief for about five months. A third operation was performed six months after the second. This was similar in character to the others, but confined to the second division, and gave no relief whatever. After this operation she began to take

¹ See Therapeutic Gazette, June, 1893.

morphin for the relief of pain. The dose was gradually increased until about one year ago, when she was taking 120 grains per week. She continued to take this amount on an average until her admission to the hospital. When the pain was unusually severe she would frequently consume from 60 to 120 grains in twenty-four hours. The drug was always taken by the mouth. During the last year she has inhaled chloroform from a bottle almost constantly while she was awake. In the ten days preceding the operation she had consumed four pounds of the anesthetic. At times it was impossible to obtain more than a few hours' sleep in the night. Since her admission to the hospital she has been made tolerably comfortable by taking from twelve to fifteen grains of morphin each day hypodermatically. In addition to this she has continued to take chloroform. Her nutrition is fairly good; the urine is free from albumin and sugar. Her face has an expression of suffering and is exquisitely sensitive to touch on the left side. There are no areas of complete anesthesia, although the left side of the nose and places on the left side of the face are partially anesthetic. The exacerbations of pain seem to have their beginning in the inferior division of the nerve. There is no paresis or paralysis of the muscles of the face. Hearing is fair and equal on both sides. The temperature, prior to the operation, ranged between normal and $101\frac{1}{2}^{\circ}$; the pulse between 101° and 128° .

On September 3, 1892, which was the day previous to the operation, she was given a brisk cathartic of Epsom salts and was carefully bathed. The left side of the head was shaved, and this area of the scalp, together with the entire left side of the face, was scrubbed with soap and water, afterward with sulphuric ether, and finally with a solution of mercuric chlorid (1:1000). Towels, sterilized in 1:2000 solution of mercuric chlorid, were then placed over the field of operation and confined there by bandages. On the following morning, the day of operation, a rectal injection was administered. Immediately preceding the operation the patient was given an ounce of whiskey with one-thirtieth of a grain of strychnin. Chloroform was used as the anesthetic. When the patient was under its influence, the cleansing process of the preceding day was again employed. The method of operation was practically that of Rose. The incision began just external to the outer canthus of the eye, and was carried backward along the line of the zygoma to a point immediately in front of the ear, thence downward to the angle of the jaw, thence forward along the line of the jaw so far as the facial vessels. This incision was deep enough to sever the skin and superficial fascia. The flap included by these lines was dissected up and turned forward. A dental engine was used to perforate the zygoma at either end for subsequent suture. Considerable embarrassment and delay were caused by the failure of this instrument to work properly. The bone was sawed between the drill-holes and turned down, together with the masseter muscle. It was found that the opening was somewhat small, owing to the unusual width of the zygoma anteriorly, and it was enlarged with bone-cutting forceps. The coronoid process was not drilled, but severed from the jaw, together with the insertion of the temporal muscle, and drawn upward. This exposed

the pterygoid fossa. The internal maxillary artery was ligated in two places and cut between. Great difficulty was experienced on account of lack of light in the depths of the wound, until Dr. Jesse Hawes suggested the use of a mirror to reflect the sun's rays. This proved quite satisfactory, and the origin of the external pterygoid muscle was now peeled off from its attachment to the greater wing of the sphenoid. The foramen ovale was located, and a half-inch trephine was applied anteriorly and external to it. On the removal of the button, the intervening bridge of bone between the trephine-opening and the foramen was cut away with chisel and mallet. The interior maxillary division of the nerve was now followed into the skull. It was impossible to see the Gasserian ganglion, but passing a small curet along the nerve to the location which the ganglion should occupy, it was scraped away. The wound was flushed with sterilized water, and the parts brought again into their normal relations. Instead of reuniting the coronoid process to the jaw, it was cut away. The zygoma was not united to the bones, but simply sutured to the temporal fascia. I believe that this was the first time that this procedure has been made use of, and the result was so satisfactory that I shall hereafter pursue this method. The time saved in drilling the zygoma and introducing the sutures is very considerable, and if equally good results can be obtained by suture to the fascia, it will certainly tell in the patient's favor. The skin-wound was united by interrupted silk sutures. No drainage was used. Small pieces of protective were placed over the wound, over this a few layers of sterilized iodoform-gauze, and this covered by an abundant dressing of simple sterilized gauze, sterilized cotton, and a bandage.

The patient reacted well and her progress to recovery was uninterrupted. The pain was completely and permanently relieved. The temperature on the evening following the operation was 101.4° , the next morning 99.8° , and from that time it rapidly declined till the third day following the operation, when it was normal and afterward remained so. On the seventh day the wound was dressed and found perfectly healed. The morphin was gradually withdrawn until the fourteenth day, at which time she was taking half a grain per day. On this date she was discharged from the hospital. Up to the present time she has not experienced the slightest return of the pain. A period of ten months is not sufficiently long in which to estimate the permanency of the result obtained by this operation, but if the good following it is in proportion to the difficulty of the procedure, there can never be cause for complaint.

HOSPITAL NOTE.

CARCINOMA OF THE ESOPHAGUS.

German Hospital, Philadelphia.

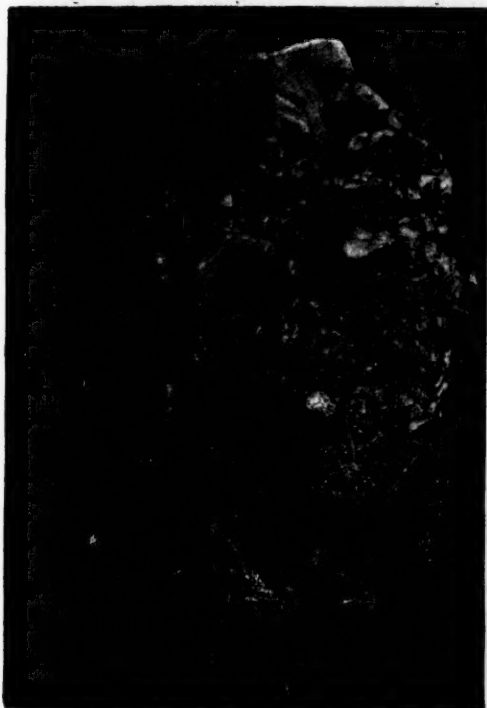
SERVICE OF ADAM TRAU, M.D.

[Reported by DR. ALFRED HAND, JR., Resident Physician.]

L. S., a male, aged seventy-eight years, was admitted June 19, 1893, with a history of having been troubled for some months with a profuse muco-purulent expectoration, out of proportion to the accompanying slight cough

He mentioned some slight difficulty in swallowing, but this did not seem to be present after he entered the hospital. He complained of diarrhea, which was easily controlled, and of pain in the stomach and in the lumbar region. These pains were constant, but not violent.

There were rather large, moist râles at the left apex, and prolonged expiration at the right, so that the case was thought to be one of pulmonary tuberculosis in old age, especially as the temperature was very irregular; but no tubercle-bacilli were found in the sputum. The diet of milk, eggs, bread, broth, and cereals was swallowed without difficulty.



The patient emaciated rapidly, and died about two weeks after admission.

At the post-mortem examination, purulent bronchorrhea was found in both lungs, with a small, encapsulated, cheesy mass at the right apex. Each pleural cavity contained a large amount of fluid. There was a large, cauliflower-like carcinoma growing from the inner surface of the esophagus, in its middle third, directly back of the heart. (See annexed illustration.) The lumen of the esophagus was but slightly narrowed. The intoxication to which the growth gave rise was well shown by the spleen, which was enormously enlarged and almost fluid; and by the liver, which was soft and dark-red. The left kidney contained seven cysts, and the right three cysts. The pylorus was the seat of fibroid thickening.

The University of Colorado announces that on and after the 1st of September, 1895, attendance on four annual lecture courses of nine full months in length will be required of all candidates for graduation.

MEDICAL PROGRESS.

Multiple Calculi of the Bladder and Prostate Gland.—ESTES (*Lehigh Valley Medical Magazine*, vol. iv, No. 4, p. 137) has reported the case of a farmer, twenty-five years old, in which seven years previously, without appreciable cause, there appeared a urethral discharge, at first slight but subsequently profuse. The possibility of venereal infection was strenuously denied. Shortly afterward there was complaint of pain in the penis, about an inch behind the glans. The man continued at work for two years, but finally the symptoms became so pronounced that he was compelled to give up. There was no especial difficulty or pain in micturition until within a period of a few months. There had never been symptoms of renal calculus or pain referred to the bladder. Some five months before coming under observation, the man had had an attack of acute illness, attended with fever, burning pain, and swelling far back in the perineum about the lower part of the rectum, which was diagnosed as acute prostatitis. The urgent symptoms were relieved by a fairly copious discharge of pus *per urethram*. From this time the man was confined for the most part to the house and for the last four weeks to bed. He was now emaciated, presenting an appearance of anxiety, suffering, and hectic. Micturition was unattended with pain; the quantity of urine voided was thought to be about the same as usual; it was passed more frequently than in health, though it could be retained for three or four hours without much difficulty. Examination with a searcher disclosed the presence of what seemed to be a large, rather soft, and immovable calculus. On rectal examination the prostate was found moderately enlarged and tender. The man was weak and his pulse was rapid and small; his appetite was impaired and he was daily having fever and sweats.

The condition seeming to be desperate, immediate operation was advised. Fourteen ounces of urine were withdrawn by means of the catheter. Examination showed the secretion to be turbid and to have a fetid odor; the reaction was alkaline and the specific gravity 1030. There was no response to tests for albumin and sugar. In the sediment that formed upon standing, phosphates and a little pus were found. A dose of calomel was given and followed by a saline. The bladder was washed out during twenty-four hours with a warm solution of boric acid. Upon careful examination of the bladder and prostate under anesthesia it was concluded that the large mass felt at the base of bladder on rectal examination was a stone, and the examination with the searcher showed that this was not only large, as well as soft externally, but also fixed. It was therefore decided to perform supra-pubic cystotomy. The peritoneum not reaching down upon the anterior surface of the bladder, the peritoneal cavity was inadvertently opened, a small amount of urine gaining entrance. A fold of peritoneum was at once caught and stitched to the margins of the incision; then the wall of the bladder was brought upward and joined to the abdominal wound by sutures; finally a puncture was made into the linea alba, and a stream of weak sterilized saline solution introduced into the peritoneal cavity through the nozzle of fountain-syringe. The incision into the bladder was

now enlarged, a finger introduced and a large encapsulated or encysted stone found. It proving impracticable after several attempts to retain it within the grasp of the forceps as it lay, after much care and difficulty the stone was separated from the walls of the bladder, turned, grasped, and removed. It was then found that there was evidently another pretty large stone at the bottom of the cavity occupied by the first, from which it was separated by a layer of soft tissue. This stone could not be extracted from above without lacerating what seemed to be the trigone of the bladder; so that a median perineal incision was made, and with a great deal of difficulty and much loss of blood a second stone was extracted. No other concretion could be felt. The patient being now almost exhausted by loss of blood, the lower cavity was packed with gauze, a fresh supply of hot saline fluid poured into the abdominal cavity, a glass drainage-tube introduced into the pelvis, as much fluid as would come out being permitted to escape from the abdominal cavity, a large rubber drainage-tube introduced into the bladder, and the patient hurried to bed. He required active stimulation for a time, but rallied well, and on the second day was doing nicely. Everything connected with the operation did well for a time, until the evening temperature became slightly elevated and the general condition began to fail somewhat. A little pus now began to appear in the perineal wound. Upon introducing a probe a hard mass was found near the neck of the bladder in a cavity of the prostate, and a small oval stone was removed by means of the dressing-forceps. Immediately about an ounce of pus escaped. On further examination two other stones were detected and removed in the same way. Thereafter the fever abated and the general condition improved. The perineal wound still continuing to discharge a little pus, after a week another examination was made and an additional stone found, and in a few days still another one was found and removed. Thereafter the man steadily improved, and he was finally dismissed, fifty days after his admission into the hospital. The aggregate weight of the seven stones was 1480 grains.

Neuritis of Infectious and Toxic Origin.—In illustration of the diversity of origin of peripheral neuritis, BARET (*Archives de Méd. et de Pharm. Milit.*, 1893, No. 7, p. 49) reports three interesting cases, in one of which the poison of enteric fever acted as the cause; in another, the syphilitic poisoning; and in the third, alcohol. The first occurred in a man, twenty-seven years old, in which upon recovery from an attack of enteric fever, complicated by myocarditis, great weakness was found to exist in the hands. Examination disclosed a condition of wasting, with impairment of tactile and thermal sensibility, with reaction of degeneration, extension of the proximal phalanges and contraction of the distal phalanges, and vaso-trophic changes in the peripheral distribution of the ulnar nerves. Decided amelioration followed upon tonic treatment and rest.

The second case occurred in a young man convalescent from erysipelas, who gave an antecedent history of syphilitic infection. The symptoms simulated those of anterior poliomyelitis. There were present weakness, slight wasting, numbness, and tingling in the lower extremities, with analgesia of the soles of the feet and en-

feeblement of the patellar tendon-reflexes. Pressure upon the muscles gave rise to a disagreeable sensation, while pressure upon the nerve-trunks caused severe pain. The muscular sense was preserved. In the upper extremities weakness and wasting were less marked, while paresthesia and anesthesia were more pronounced. There was also slight convulsive tremor of the fingers. Micturition and defecation were not deranged and there were no cerebral or ocular complications. The administration of strychnin and sulfurous baths was followed by no improvement. The patellar reflexes became entirely abolished and the muscular sense in the lower extremities totally lost. Treatment with mercurial inunctions and potassium iodid was now instituted, but was suspended upon the development of a left pleural effusion, for the relief of which puncture was several times performed. The general condition became quite poor; the legs became edematous; and it was found that thrombi had formed in the femoral arteries. Anti-syphilitic treatment was now resumed, and decided improvement was immediately noted in the local and general condition.

The third case occurred in a man, twenty-three years old, addicted to alcoholic excess, who presented symptoms suggestive of posterior spinal sclerosis. For a number of months it had been observed that fatigue was induced with undue readiness; the gait was awkward; lancinating pains appeared paroxysmally, particularly in the distribution of the sciatic nerves; at night there occurred cramps in the calves of the legs. There was, however, no girdle-sense and no visceral crises. Upon the left thigh and leg were circumscribed areas of analgesia, while upon the soles of the feet all forms of sensibility were impaired. The skin-reflexes were preserved. The patellar reflexes were exaggerated, but there was no ankle-clonus. There was a tendency to foot-drop. Gait and station were quite ataxic. Tremor was marked in the upper extremities. The shoulders and arms presented several disseminated areas of analgesia. Marked improvement supervened upon a milk-diet, withholding alcohol, and the administration of large doses of iodid.

Radical Operation for Unincarcerated Hernia.—LEUW (*Archiv für klinische Chirurgie*, Bd. xlv, H. 1, p. 40) analyzes the results of a radical operation upon 119 hernias of various kinds in 106 persons, performed by Professor Kocher at Berne, and concludes that if carried out with appropriate aseptic and antiseptic precautions, the radical operation is *per se* not a dangerous operation. If other therapeutic measures (trusses) fail to afford relief for an existing hernia, the radical operation is indicated in early childhood. While youthful age is an indication for the radical operation, advanced age does not of itself constitute a contra-indication. Constitutional disturbance or disease of other important organs would be a contra-indication. The success of the operation is dependent first, upon the method adopted; secondly, upon the aseptic course of the case; and finally, upon the degree of separation of the columns, the size and character of the hernia, and whether there be a single hernia or more than one. The result is in slight degree governed by the age of the individual, but is quite independent of the age of the hernia.

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SATURDAY, SEPTEMBER 16, 1893.

TENOTOMOMANIA.

At the meeting of the Ophthalmic Section of the Pan-American Medical Congress there was, with a few exceptions, a manifest inclination toward a more conservative, that is to say, a truly medical treatment of heterophoria or insufficiencies of the ocular muscles. One entire day was devoted to the discussion of these problems, and the members were delighted at the evidences of carefulness and sanity manifested.

It seems to be largely admitted that, generally speaking, we are at present or have but lately been indulging in an exaggeration of the function and importance of the surgical aspect of medicine. "The glamor of successful surgery" has so bedazzled the eyes of the lay world that our own professional perspective is at least very faulty, and instead of preserving a sane sense of the proper proportions we have too thoughtlessly acquiesced in the popular craze of glorification of all men and things surgical. To be a good general physician certainly requires as great intellectual and professional ability as to be a great surgeon. Every conservative physician—nay, every frank surgeon—will admit that surgical gynecology has often and injuriously intruded itself into the proper domain of general medicine and that many unnecessary operations have been and are still

daily being performed; and unnecessary surgery is medical crime. Strictly speaking surgery is not medicine, it is the despair and renunciation of medicine, a *dernier ressort*, as it were, and has place only when cure is beyond the means of the therapeutic art distinctly and properly bounded. When the physician, the healer and curer by physiological methods, can do no more, then arises the need of the surgeon. However glorious his office, however splendid his achievements, and however successful his results, we should never lose sight of the proper limits both of his field of work and of those of the general physician. Entirely too often we have thus lost sight and sense of these boundaries, and the surgeon has often arrogated to himself work that did not belong to him.

In ocular therapeutics, especially as regards imbalance of the extra-ocular muscles, there has been an outrageous excess of surgical impertinence, a genuine tenotomomania. We have flung conservatism and a healthy judicial attitude of mind to the dogs and have indulged in a kind of surgical debauch, with reckless disregard of physiology, the general condition of the patient, and of central and allied abnormality. Where else in the whole domain of surgery and medicine do we witness proceedings allied to those of tenotomy for heterophoria? No one will contend that these cases have the faintest resemblance to the contracted tendons and plainly morbid conditions existing in talipes. Where else do we operate on functionally paretic or incoördinated muscles?

Every ophthalmologist also knows, too well knows, of many cases wherein ocular tenotomies for insufficiency have not cured or where they have made matters worse. Everyone knows that the results of the healing after tenotomy are entirely doubtful, and often disappointing. Everyone knows that the operation to relieve one or two degrees of imbalance requires a superhuman delicacy and accuracy on the part of the operator. Pretence of possession of this accuracy is simply silly.

It is also fast coming to recognition that, owing to the very peculiar and complex interrelations and functions of the ocular muscles, as well as from a hundred other reasons, philosophic or experiential, these muscle-troubles, supposed, and so-called, are often not muscle-troubles at all; they are not always peripheral in origin or in essence, but are often of central origin. The malfunction resides in the innervation and the innervating

centers. For example, upon a patient with eighteen degrees of esophoria, complete tenotomies of both internal recti have produced temporary muscle-balance, but in ten days the eighteen degrees reappeared and the man stood just where he was before the operation.

In the first place many of these incoördinations are due to general disease, such as anemia, tabes, pelvic disorder, syphilis, etc., and require proper general treatment to reestablish healthful normality of function. One of the speakers of the Congress detailed a number of cases that had come under his observation, in which operations on the muscles had been worse than useless because the paresis was plainly due to cord-disease.

Then, again, a large number of these incoördinations are due to the uncorrected ametropia. The tenotomist, despite himself and despite his remonstrance, ignores the fact or depreciates its importance, that the refractive error produces muscular defect, and the correction of the ametropia either relieves the reflex symptoms or cures the muscular imbalance. It is perfectly possible, nay, it is highly probable that hyperopia and hyperopic astigmatism may be the chief etiological factors in the production of *both* esophoria and exophoria. A single cause may produce diametrically opposite results, according to its strength and according to the circumstances and conditions among which it operates.

Finally, in a large balance of cases not due to general disease, or to ametropia, it is certain that gymnastic exercises may reestablish the desired muscular equilibrium. All success by this method depends upon the kind of exercise, and how it is carried out. In the case of other paretic muscles (supposing, for argument's sake, that the muscles are primarily at fault) we do not cut them, but we endeavor to stimulate them to healthy action and development by gymnastics, by hygienic and physiologic measures. Why not also do the same with the muscles of the eye?

There is a proper place for tenotomy for insufficiency, but it should be resorted to only after the foregoing methods have been tried.

We congratulate the Ophthalmic Section of the Pan-American Medical Congress on the noteworthy success of its entire series of sessions, but especially upon the fact that there was started a healthy conservative reaction against the excesses of the over-enthusiastic tenotomist.

POPULAR INSTRUCTION IN THE PREVENTION OF TUBERCULOSIS.

THE response on the part of physicians as regards the distribution to tuberculous patients and their friends, of pamphlets to prevent the spread of the disease, has been unexpectedly gratifying. Several thousands of the pamphlets have already been ordered.

We have also received from The Pennsylvania Society for the Prevention of Tuberculosis copies of two pamphlets, issued by the Society and distributed gratuitously. The pamphlets contain more words than that of DR. ROCHESTER, but in some ways possibly serve the purpose in view somewhat better. We shall therefore recommend our correspondents to apply to the Society named, as it furnishes a formed and convenient means of carrying out the excellent design. So far the Society has issued two circulars, each containing four octavo pages. Tract No. 1 is entitled "How to Avoid Contracting Tuberculosis (Consumption)," and Tract No. 2 is headed "How Persons Suffering from Tuberculosis Can Avoid Giving the Disease to Others."

Physicians will at once recognize that this is a "labor of love," and that instead of buying pamphlets they may accept the Society's offer of membership for the sum of one dollar, and get the tracts *gratis*, in such amounts as they can advantageously use. But of course it is understood that the tracts will be furnished upon application to the Secretary whether one is a member or not.

The Secretary is E. LESLIE GILLIAMS, and his address is 806 Walnut Street, Philadelphia.

EDITORIAL COMMENTS.

The General Session and the Section.—At the meeting of the Pan-American Medical Congress, one of the most successful Sections resolved at its first meeting to carry on its section-work during the meeting-hours of the General Congress or General Session. This was in no disrespect to the General Congress, of course, but was necessitated by the amount of work to be done by the section and greater interest in its proceedings. The resolution was faithfully carried out and no one regretted it. The earnest workers wisely preferred work to east wind. According to an old medieval medical writer, east wind is peculiarly prone to produce flatus, and should therefore be carefully avoided!

Limit the Reading of Papers at Least to Twenty Minutes.—One of the Sections at Washington resolutely resolved to limit all speakers to twenty minutes, no vote being allowed to extend the time of anyone. The result was a series of bright, condensed, and interesting papers, the

attention of the audience never flagging and satisfaction expressed by all. Another, perhaps many other Sections, gave "courtesy" to one and so courtesy to all (except the listeners), with the result that some writers read for an hour or two, to the great disgust of everybody. And to cap the climax, some of the hour-long papers were in Spanish! In these cases the punishment most excellently fitted the crime.

The American Medical Association.—By the special committee of the American Medical Association, it has been resolved to recommend to the general business committee of the Association a change of the date of the next meeting of the Association, from the first Tuesday in May, 1894, to the third Tuesday in May.

SOCIETY PROCEEDINGS.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

Held at Washington, D. C., September 5, 6, 7, 8.

(Continued from page 308.)

GENERAL SESSION.

THIRD DAY—SEPTEMBER 7TH.

THE principal address of this session was delivered by MR. ERNEST HART, of London. He said:

MR. PRESIDENT, LADIES, AND GENTLEMEN: We are told traditionally that Sir Astley Cooper, one of the great surgeons of this century, who remains with us not only as a model of a brilliant surgeon, but an accomplished gentleman, was in the habit of addressing every candidate for a degree from the college with which he was connected, something after the following manner: Gentlemen, you are about to enter upon a noble and difficult profession, and your success will depend principally upon three things: Firstly, upon your knowledge; secondly, upon your continuous industry; and thirdly, upon your moral character. Without the first, no one could wish you to succeed; without the second, industry, you will never be able to succeed; and without the third, strength of moral character, even if you do succeed, success can bring you no happiness. Now, those words might form a very adequate summary, a short text-book of the conduct, private dignity, and etiquette in relation to public affairs, of all medical men; and, one might very well ask whether anything more than that is at all necessary, whether there is any necessity for a detailed and elaborate code when the whole philosophy can be summed up in so few words. And just now in our country some do ask that question, and I think to some extent in this, it has become a question as to just how far it is necessary to add to the simple rules of ethics, which give the conduct of Christian and honorable gentlemen in all professions. Is it necessary to add to this a detailed code of medical ethics or of medical etiquette? That question is one which has been solved. It was held in no doubt until these recent times. But, nevertheless, I think it is clear that never at any time, if there were a necessity for such a code, could that necessity be nearer and more apparent than at the present moment. Under the stress of a developing civilization, with the temptations and difficulties induced by the enormous facilities

for advertisement, the enormous temptations for advertising with all the arts of those who make advertising a business, and the profit to tempt the medical man from the ancient bond of modesty and diffidence, there is now the strongest reason for fortifying every professional man against the inroads of modern temptations, by a code so precise, by deductions so exact, so comprehensive, and so far-reaching that he shall never be overcome by such temptations, but shall be able to know at once, and under all circumstances, what is his duty, what is the rule of his profession in any one particular case in which he may be tempted. By possible excuses, which his vanity, his interest, his natural love of prominence suggest to him, he may be tempted to decide a doubtful case in his own favor and against the general good and welfare of the profession as a whole.

Now, I want to say that such a code as this does exist, and exists upon a logical and strong basis, exists for the benefit of the public, at least as much, if not more than for the benefit of the profession; that it is not a trades union business, it is not an elimination of public liberties and rights for the benefit of a private interest, but that it is, on the contrary, a movement which is made far more for the interests of the public in general than for the interests of the profession, and that applies not least, but even more to those regulations of the medical code which have from time to time been stigmatized by the public press as narrow and oppressive, and stigmatized as useless by those who call themselves the bolder and younger spirits among us. But, not even the youngest of us, as you know, are infallible, and I think it is precisely the youngest and boldest which, in this case, are likely to go wrong.

Now, first of all, let me remind you that the medical profession is only one of many professions. We have standing alongside of us the profession of law and the profession of the church. It is interesting, from a universal standpoint, to consider what is the code of the legal profession, why is that code justified and how does it compare with the medical code? Just before I came to attend this Congress, I wrote some legal men concerning some details of the legal profession. One of them said: After all, the general spirit of a code may be summed up in a few words: That, every practising lawyer ought to be a gentleman and do only what is honest and honorable and fair to others, and, if he does not act like a gentleman and is not honest and honorable and true to his profession, honorable men ought to have nothing to do with him. (Applause.) Now, you notice the deduction, that if he does not, honorable men of the profession ought to have nothing to do with him. That is precisely our position to-day. (Applause.) Questions in the bar and with the legal profession are strengthened by this, that the discipline of the bar is absolutely in the hands of the Attorney-General of England for England, and is decided without appeal, so that any solicitor who is guilty, not only of any technical offense against his duty as a lawyer, but any solicitor who is guilty of anything which brings dishonor upon him as a gentleman is frequently not only temporarily suspended and subjected to deprivation of the right to plead, but the right to practise his profession. My friend sent me a case which occurred last June, in which it was decided that a solicitor in a provincial town who had, in virtue of

certain house-property which he held, been a party to immorality, and used the house for immorality, and had left a stain upon his character as a gentleman, and for that he was excluded from legal practice for a number of years, subject to reinstatement upon proof of good conduct. So, the legal profession has a code far stricter than ours, but a code which everyone admits is for the benefit at least as much of the public as of the profession.

Now, let us take one or two other examples of legal etiquette. There are several things a lawyer must not do. He may not conduct a speculative suit. That is to say, he may not conduct a suit in which his pay depends on the issue of the suit. Well, that looks like a restriction upon liberty, O, how that word liberty is licensed! Liberty is a blessed word, but compulsion is a more blessed word. (Applause.) That looks like a restriction upon liberty, but if a lawyer is personally and financially interested in the result, and the case goes against him, he is angry with the judge and is apt not to do his duty, because it is his duty to see that justice is secured. So, although it looks like a restriction on the lawyer, it is only right he should have no financial interest in the case he conducts. Many men do. There are here many of what you call shyster lawyers. They are not the men of whom the country is proud. If a man does not regard the code of ethics, honorable men should have nothing to do with him. So with many other elements in the legal code of ethics, which I will not dwell upon.

I will pass at once to the code of the medical etiquette, and I will ask you to consider whether you are of the opinion that you can safely cast aside all the precedents of past experience, all that you may call the case law. That is the question and deductions which have been carefully and deliberately reached in respect to the applications, to the daily applications of medical life of the general principles of ethics. Now, if men abjure the abstract and moral character, no doubt a few abstract and moral laws would suffice for his daily needs. For example, a medical man is prohibited from consultation with quacks. Now, in order to determine the meaning of the word quack, I have looked up Dr. Johnson's definition. "Quack—a boasted pretender to arts which he does not understand; a boasting pretender to physic, one who proclaims his own medical abilities in public places; an artful tricking practitioner in physics." Thus, you see there is no distinction between the quacks who have medical degrees and the quacks who have not. Moreover, no respectable physician should advertise. That is a method of the quack. He is a person who seeks advertisement. This advertisement may be in the way of an interview by a representative of the secular press, or it might be by a published letter, by the description or criticism of some new alleged system of treatment, or it might be by divulging the secrets of the sick-room and reporting without authority of permission on the incidents and course of the illness of the distinguished or notorious somebody, who Dr. ——— is treating. Such arts are in direct contravention of medical etiquette, and deserve the scorn and reprobation of every honorable person as well as every honorable medical man. (Applause.) It is in the interest of the public in general, of the whole community, that the medical profession and every member of it shall be worthy of the confidence of the public, and that the physician shall

earn his reputation, not by dishonest means, not by advertisement of himself or his books, not by the prominence accorded to him by the journalist, but by his colleagues of accepted and approved knowledge, and in view of his conscientious and modest application of that knowledge. As to the rule which prohibits the medical man possessing or profiting by any secret remedy: Not only is this an offense against professional morality, but it is a source of great public danger as well. The physician owes his knowledge as well as his capacity for practising medicine to the open communications of by-gone practitioners, and daily he continuously receives such aid from his colleagues. Indeed, it is to their published knowledge and experience that he owes the greater part of his means and ability of practising his art. A new treatment, drug, or medical dogma, is like a doctrine, dogma, or deduction, in theology. The one is for the purpose of aiding the body, for physical salvation, while the other is an aid to spiritual salvation. From traditional law, and in virtue of the mission of the physician or priest, both are alike the common birthright of humanity, and any man who for profit keeps as a secret a new treatment or a new doctrine is a traitor not only to his profession but to all humanity. The physician who trades in or palters with secret remedies is untrue to his obligations, unfaithful to the world, a shame to himself, and a dishonor to his calling. It is only right that he should be treated accordingly under the professional code, and that he should not have a standing equal to the man who is true to his profession, true to humanity, and true to himself. (Applause.) Nor can the alleged value of any so-called secret remedy be held to condone such an offence, for never in the whole history of mankind has there ever been one of these so-called secret remedies which when divulged or discovered by examination has proved to be of the least value.

Next, we are not permitted to consult with homeopaths. This portion of the code of medical ethics may be justified as a principle of elementary morality. How can we believe in their ability, or how can we appreciate the medical capacity or the fitness to undertake the treatment of disease, of the so-called homeopathic physicians, who hold that drugs, which given internally will produce certain symptoms of disease, are the proper remedies for those maladies? For example, we do not believe that medicines that produce skin-reddening are the proper therapeutics for erysipelas, that leucorrhine should be administered for leucorrhea, syphiline for syphilis. We do not agree that all chronic maladies arise from syphilis, sycosis, or itch. How can we, under these circumstances, consult together? It would be impossible for us to agree. Further, we do not believe that medicine acts with an intensity proportionate to the smallness of the dose, or that there is any utility in prescribing in accordance with these principles. What would you think of giving a decillionth of a grain of medicine! A dose so small that it has been calculated that if every being on the globe were to take it once a minute for thousands of years they would not finish a single grain. Again, we could not agree with them that the strength of a medicine increases according to the number of shakes given to the bottle containing it. We hold that such treatment is futile and senseless, and that

to pretend to consult with those who thus designate themselves and who make assumptions so irrational, would be a dangerous farce and would cover, to the great detriment and perilous misleading of the public, a practice which is either a dying delusion or a galvanized fraud with the false mask of respectability. It is true that some who call themselves homeopaths do cure diseases by prescribing physiologic doses, but it is not for us to countenance such fraud and dishonesty, for the homeopath who does this is dishonest. On the other hand, if he prescribes according to the rule of Hahnemann, he gives to the patient that which is valueless. It would be as well to ask a Catholic priest to administer religious consolation to a dying patient in consultation with an agnostic, as to ask a scientific physician to consult with a homeopath. The whole proceeding is dishonest on the one side or the other.

Again, a medical man cannot take charge of the patient of another without previous consultation and approval of the physician who previously had the case in hand, or rather under whose care the patient was at the time. A physician is prohibited criticising or advising a patient on any matter relating to another man's work, except under certain stated circumstances and conditions. The consultant is forbidden under any circumstances to take the place of the physician who called him in. All of this is as much, at least, and perhaps more for the public good than for the good of the profession and of the individual.

DR. GIHON reported the resolution adopted by the Section on Hygiene recommending the suspension of immigration into the countries of America from those countries in Europe and Asia in which cholera is raging. The report was referred to the International Executive Committee.

FOURTH DAY—SEPTEMBER 8TH.

DR. GARCÍAS, of Colombia, spoke (in Spanish) briefly, explaining why more of his countrymen were not present at the Congress, and offered congratulations and thanks on behalf of his colleagues.

DR. FERD. C. VALENTINE, ex-Surgeon-General of the Honduras Army, and present editor of the *Medical Press*, of New York, gave a pleasant and interesting address as to Honduras and its relations to the American people.

The International Executive Committee's report was read by Dr. Reed, and considered such questions as those of a permanent organization of the Congress and its Sections; resolutions referred from the Sections, especially those from the Sections on Hygiene, Climatology, and Demography; the establishment of National Departments of Health, etc.; the suspension of immigration from cholera-infected ports, etc. From the Section on Hygiene Dr. Gihon reported the following resolutions:

Resolved, by this Section, that the following resolutions be added to the resolutions already adopted and reported to the general session relative to temporary suspension of immigration, to wit:

Resolved, that in the opinion of this Section the thorough disinfection, without discrimination, of every piece of baggage, dunnage, or article of personal effects belonging to the immigrant classes and to crews of immi-

grant ships, and the exaction of scrupulous cleanliness of all vessels arriving at Pan-American ports should be rigidly enforced at American ports, supplementing and enhancing the protective value of similar treatment at the ports of departure, especially at times when cholera exists in Europe, as a sanitary precaution, second only in efficiency and importance to the temporary suspension of immigration.

Resolved, that it is also the opinion of this section that the habitual and thorough disinfection of all personal effects liable to carry contagion of immigrants to the American hemisphere, and of dunnage of crews of vessels carrying the immigrants from any quarter of the globe, and the exaction of scrupulous cleanliness of all vessels arriving at American ports should be enforced at all times as the most efficient means of greatly lessening the introduction into this hemisphere of the seeds of various contagious diseases, which are now and have been in the past almost constantly conveyed by the immigrant classes and distributed widely among the population of this hemisphere.

SECTION ON GENERAL SURGERY.

FIRST DAY—SEPTEMBER 5TH.

DR. JOHN B. HAMILTON, the Executive President, delivered an address. He said that the rapid evolution of surgical knowledge is one of the wonders of this remarkable age, and surgeons may fairly claim that their own branch of medicine has kept equal pace with the stupendous advances made by the collateral sciences. A review of the surgical progress of the last decade alone constitutes one of the most brilliant pages of the history of medicine. And yet one must remember that all scientific progress is based on antecedent fundamental facts, discovered by slow, laborious, and painful steps.

The labors of Darwin, Huxley, Herbert Spencer, Pasteur, and Lister, in the last decade, have made possible the practical successes in the present decade.

The subject of surgical bacteriology, which includes the chemical study of microbic products, has still much to disclose, but we already base our practice on the immortal discovery of Pasteur. Bacteriology has added much to our knowledge of tuberculosis, and given more precision to its treatment, but that knowledge is still imperfect, and its treatment far from satisfactory. Much less has bacteriology added to our knowledge of the carcinomata, which still remain one of the mysteries of medicine. We have for years studied the varying departures of tissues from the normal to the abnormal type, and bacteriologists have in vain sought to connect the atypical structure of carcinoma with some bacterial development. The study of embryology and atavism seems at present the most probable avenue to the truth.

What may we hope for the future of surgery?

It seems likely at this day that improvements in technique will continue to occupy the surgical mind until some epoch-making discovery in physiology shall have been made. It is not likely that the present generation of surgeons will witness another discovery as far-reaching as that of Pasteur. We must digest and fully assimilate the discoveries of the bacteriologic epoch; that process will probably fully occupy our time and that of our immediate successors. It is true that we may have

some help from advances in the collateral sciences; transillumination of the body, for example, may be yet fully developed in our time, instruments of precision as aids to hearing and vision may greatly assist us in making our present knowledge useful, but the great outlets to human life, such as carcinoma, in all probability will have their genesis understood only by the surgeons yet unborn. When that time shall have come, carcinoma and tuberculosis will be classed among the preventable diseases. These two affections have cost more human lives annually than cholera or yellow fever, and yet no government has ever set on foot any systematic and regular inquiry into their causation or propagation. It is true that the study of tuberculosis in cattle has been the subject of much attention by the Bureau of Animal Industry, but so far as the human race is concerned little has been done in the direction indicated.

DR. ROBERTS, Chairman of the Section on Anatomy, delivered a short address. DR. EDWARD A. TRACEY, of Boston, Mass., read a paper entitled "A Brief Splint-Technology for Surgeons." The objects of this paper are: to treat in detail of a new material and method used in surgical splint-making, to urge the surgeon to become the maker of suitable splints for cases occurring in practice, and to indicate lines of procedure in apparatus-making.

Material. The basis of the material employed is wood-pulp, made preferably from the crushed fiber of the poplar tree. This is rolled into sheets in such wise that the fibers intertwine in every direction, and loosely, thus giving an increased ductility to the product. These sheets are further strengthened by having a fabric introduced between the layers of the pulp, or by interweaving with the short, crushed wood-fibers, a long jute, or other tough fiber.

These sheets are made of several thicknesses; for convenience I shall designate them by number, each figure representing one millimeter. Thus, sheet 1 has a thickness of one millimeter, sheet 2, of two millimeters, and so on.

The characteristics of this material are stiffness or rigidity when dry, and plasticity with toughness when moist. Its rigidity can be increased *ad libitum* by the use of a silicate solution as a moistener.

Splints for irregular surfaces. A splint cannot be directly moulded over the ankle-joint, owing to the great irregularity of that part. This difficulty can be overcome in several ways. The anterior splint should be cut from sheet No. 1, and applied, after moistening, to the limb, care being taken to keep the outer border in contact with the skin and the superfluous material pinched up between the thumb and forefinger. A bandage should be applied to perfect the moulding of the splint. Again, it is possible to cut away the superfluous material, bring the edges together, and retain them there by a strip of material over the cut edges.

Moisteners. Water, or a stiffening solution, can be used to moisten the material previous to molding. The advantage of water is its omnipresence. With its aid a serviceable splint can be made. Such a splint, however, is liable to be softened by the absorption of perspiration, or, on children, of urine; and for this reason it should be protected by a covering of oiled paper silk, mackintosh, or, best of all, by a coat of varnish.

A solution of potassium silicate has several qualities that render it the best of the stiffening solutions experimented with. Any desired degree of rigidity up to brittleness can be given the splint by using a silicate solution as a moistener—the stronger the solution the more rigid the splint. A splint rendered rigid in this wise is not affected by perspiration, nor, indeed, by momentary contact with fluids, as in washing. Another quality, of exceptional advantages in cases of compound fractures is that this solution has strong antiseptic properties. The manner of moistening deserves mention. It is most satisfactorily done by means of a flat paste-brush, applying the fluid used on both sides alternately of the splints, and repeating until the proper amount of fluid is absorbed. Practice enables us to judge the precise amount of moisture suitable for our purpose.

A splint for the spinal column should be cut from sheet No. 1, moistened with the solution of potassium salicylate, and passed once and a quarter times around the patient's body. The position of the patient should be like that when a plaster jacket is used. A sheet wrapped around facilitates the adherence of the splint, the material whereof should be pressed into the hollow of the back.

A light and excellent splint for the forearm, and such as retains the bone in position with ease, is made with this material. A palmar forearm splint is sufficient in most cases.

In the discussion that followed, DR. WAKLEY, of Malone, N. Y., observed that new paper-pulp, which acted like the wood-pulp used by Dr. Tracey, was inferior in this respect, that it could not be folded and bent about sharp angles.

DR. SAYRE, of New York, stated that the splint was very light and very nice, and for many cases very useful, but he would not think the material suitable for spinal supports, because of bending and puckering in of the material when it was wet to fit it to the body. It does not make the exact fitting necessary to give good support to the spine. The fault he has found with all materials he had tried is that while wet they were not sufficiently pliable and elastic to adapt themselves to irregular outlines, and the fit was consequently only approximate. In many cases it is not necessary to have a very good fit, and for such purposes this material is very useful.

DR. McLEAN, of Detroit, had for years been accustomed to extemporize splints out of folded newspapers, which he had found very useful and always to be had in cases of emergency. He noticed Dr. Tracey passed around a forearm splint, which appeared to be for use in Colles' fracture, and he personally thought that too prolonged retention of splints in this fracture and the extension of the splint too far down upon the hand were detrimental and tended to the production of stiff wrist and fingers afterward, which he thought was to be attributed rather to the splint than to the injury of the bone.

SECOND DAY—SEPTEMBER 6TH.

Morning Session.

DR. JOHNSON read a paper on "Simplicity in Surgery," in which he inveighed against the practice, too frequent nowadays, of adding new and not very useful

details to the already complicated procedure of surgical operations. He would abandon nothing of real utility, but would strip operations of all "useless and cumbersome frills." He contended that simple aseptic means were the best, such as the use of boiling water for disinfecting instruments, provided the boiling went on for a sufficient time; the use of gauze dipped in a corrosive sublimate solution and wrung out, and attention to the ordinary rules of cleanliness. The older and simpler sutures have kept their place. And for hemorrhage, the Esmarch band has proved the most effectual control.

DR. HAINES, of New York, then read a paper on the "Study of Anatomy of the Thoracic Organs by Means of Composite Photography." He had photographed a large series of cadavers, after making certain dissections, and had made composite photographs of these dissections, and taken careful measurements of the relations which the parts bear one to another. He found that a good many of the statements in some of our standard text-books were at variance with the results which he obtained by this process. In many instances the statements in the present text-books are very vague and unreliable, and the points from which measurements are given are so indefinitely stated that no accuracy can be had in determining the exact location of the parts. The paper had particular reference to the location of the heart.

"Observations on the Rotary Lateral Curvature of the Spine, with Special Reference to Etiology and Treatment," was a paper read by DR. TESCHNER, of New York City. The best results are obtained by early treatment. The disease is more common in girls than boys.

Factors in the etiology of the disease, which are to be regarded as of special importance: Hereditary tendency; general temperament, and the condition of the mind and nervous systems; lack of development of the muscular system and general physical condition.

As to the first, frequently I find decided scoliosis in the mothers of girls brought to me for treatment. *

Secondly, most girls afflicted are of an apathetic, morose, and lazy disposition, disinclined to play, and commonly silly and staring in expression. There is a lack of coördinating power, which disappears on treatment. If the wrist is extended the elbow is usually flexed. In addition, the muscles are poorly developed, the digestion weak.

An habitual faulty position of the body, such as resting on one foot, or sitting on one buttock, with the shoulders bent forward, so that there is a sagging of the whole body, may lead to a permanent distortion, by causing actual bony and ligamentous changes. Long school hours are a cause.

Treatment. Removal of the causes. Deformities should be mitigated. Frequent baths, and tonics if necessary, with careful regimen were advocated. The patient should be placed in a proper manner, in a chair reaching to the shoulders and supporting the back, with the foot touching the floor. Frequent lying down, with the legs extended and arms fully stretched out, is to be recommended as well as self-suspension twice a day.

Lower habitual scolioses can be obliterated by voluntary muscular effort. No support like a corset should be permitted.

Again, there are scolioses that, unaffected by muscular

effort, can be reduced or obliterated by suspension of the patient. In these cases I adopt light and well-cemented plaster-of Paris corsets, while the patients are suspended. As to scolioses when the deformities are fixed, I make use of forcible daily twisting of the spine in compression of the ribs by means of an apparatus described by D. A. Hoffer, of Würzburg.

In the discussion, DR. SCHNAPPS, of Brooklyn, said he thought that cases of lateral curvature required no mechanical support, and that teaching the patients to rely upon their own muscles to hold their bodies upright was very necessary, and that artificial props tended to diminish the power of the muscle by constricting it.

DR. TESCHNER replied that some cases required and some cases did not require artificial support, and that when he can get along without this support he does not employ it, but in some cases it is necessary to use it until the patient develops sufficient muscular power to be able to voluntarily keep the body upright. In many cases they are not able to do this.

DR. GRAHAM, of Chicago, read a paper on "Carbuncles." After an exhaustive review of the subject of carbuncles, Dr. Graham spoke of the methods of treatment. He thought that often subcutaneous suppurative inflammations were called carbuncles, when they were only abscesses. The true carbuncle is necessarily limited in its extent and duration. Palliative means he considers useful if nothing more can be done. Caustics, incisions, etc., are recommended, but he advised the total extirpation of the indurated mass as a tumor would be extirpated. The extirpation should be done early, and the incision should extend just beyond the borders of the induration.

Afternoon Session.

A paper on "Recumbency in the Treatment of Pott's Disease" was read by Dr. JOHN C. SCHNAPPS, of Brooklyn, N. Y.

It is not alone the collapse of a cavity produced by disintegration which is the local determining condition of the deformity of Pott's disease. The softened bone which surrounds for some distance and merges into the seat of actual destruction is squeezed out by longitudinal pressure, bent out by antero-posterior leverage, and pushed out by direct backward pressure. To directly antagonize these deforming forces it is necessary to have a passive spine. Portable apparatuses are limited in their efficiency by reason of the distance and heterogeneous character and mobility of the parts which intervene between their points of application and the lesion sought to be controlled, and are usually applied with a view to maintaining the activity of the spine as a support and a base for muscular exertion. Recumbency means more than simply putting a patient to bed. It implies the retention of the whole spine in the best possible position so that the separate parts remain unchanged or subject to such changes only as the surgeon may make. When the patient is horizontal, the force of gravity which had acted when upright as a deforming agent can be converted into a reforming force. Direct backward pressure can be accurately antagonized. Muscular action and consequent interosseous pressure, now greatly reduced by the general condition of rest, can be overcome by fixation and by less traction than would be required to raise the weight of what were superincumbent parts.

The spine, thus relieved of the performance of all its active functions, and saved from all traumatisms, is placed in the best possible condition for repair. And, what is of great importance, fever and the drain of muscular spasm, pain, and perverted nutrition are met by a state of systemic rest. Clinical experience has demonstrated the truth of these theoretic considerations. The indications for recumbency are: (1) As a routine measure, so soon as a diagnosis of spondylitis has been made or is even probable. (2) In cases of patients wearing braces, with persistent sores, progressive deformity, psoas contraction, acute or increasing abscess, loss of power, pain, night-cries, grunting respiration, inclination to lean on chairs, etc., or any other suggestion by face, attitude, or gait that the proper degree of support has not been secured.

DR. FRANK, of Chicago, read a paper on "Tapping of the Ventricles of the Brain for the Relief of Intra-cranial Pressure." He indicated the methods by which the ventricles of the brain can be reached through the brain, and emptied, for the purpose of relieving these cavities of the products of inflammation, and the brain from the effects of the compression due to the accumulation of abnormal fluids. Under favorable conditions the operation might be done with fair prospect of success.

In the ensuing discussion, DR. GRAHAM, of Chicago, said: The position Dr. Frank takes, I understand, is that all cases of traumatism, or all cases of inflammatory conditions of the brain with one side paralyzed, should be tapped. I think it perfectly proper in cases of paralysis following traumatism to tap the lateral ventricle. In inflammations of the brain, if we suspect abscess, the case is not properly treated by stopping at the dura. We should tap the cavity.

PROF. LAVISTA (in Spanish) expressed general admiration of the presentation of the subject by Dr. Frank. He has come to the practical conclusion that, instead of simply trephining, or simply tapping the ventricle, it would simply be better to perform craniectomy, which would be more conducive to a permanent cure. The removal of the larger section involved is a more permanent way than the other methods suggested.

DR. MARIAN, of Pueblo, Mexico, read a paper on "Suture of the Brachiocephalic Vein, with Report of a Case." The author uses deep interrupted sutures, made of fine catgut, and in the case reported there was no sign of thrombosis or interrupted venous circulation. Last July the author was called to see a man aged fifty-one years, upon whom it was necessary to perform an operation which involved an important vein. Two sutures were passed with a fine needle. Recovery followed.

In the discussion DR. MARCY, of Boston, said the paper just read points to a distinct advance in surgery. Comparatively little has been known of the possibility of suturing veins. I have had but one opportunity, and that was suturing the right jugular in removing a cancerous growth. The operation was performed this year. It seems to me that a continuous Lambert suture would be valuable in these cases, if care is taken not to puncture it. It is surprising how little force is required to control the hemorrhage, and the less pressure necessary to stop the bleeding the better.

DR. LAPLACE, of Philadelphia, read a paper on

"Gastrostomy for Relief of Esophageal Stricture." After describing a successful case, he proceeded:

The second case, thirty-two years of age, had lost the power of deglutition; otherwise he was well. There was a stricture of the esophagus. An operation was made, requiring two separate sittings. Food was introduced into the stomach through the opening. It then occurred to me that I might introduce the sound through the stomach up the cardiac extremity; I think it could be introduced through the stomach into the esophagus.

THIRD DAY, SEPTEMBER 7TH.

PROF. WOLFE, of Glasgow, Scotland (Royal Infirmary), demonstrated the transplantation of flaps from the conjunctiva of the rabbit to the human subject. After carefully dissecting the flaps from the conjunctiva he grafted the skin on the back of his hand. It was claimed that these are especially adapted to burns.

The transplanting of skin flaps from distant parts was postponed.

DR. MARCY, of Boston, read a paper entitled "In What Class of Cases is Drainage Required?"

A discussion followed, in which Dr. Marcy's opinion that drainage-tubes ought not to be used in aseptic wounds was supported by several gentlemen, among whom were Drs. Quimby, Prewitt, McCosh, and Laplace. Dr. Marcy concluded the discussion with the remark that "the great secret of the cure in hernia is to operate so as not to use drainage."

SECTION ON OBSTETRICS.

FIRST DAY—SEPTEMBER 5TH.

DR. JOHN O. POLAK, of New York, presented a paper on "The Management of the Hemorrhages of Pregnancy." The hemorrhages occurring ante-partum are 1, bleeding as a symptom of miscarriages; 2, placenta prævia; 3, accidental hemorrhage from the partial separation of a normally-placed placenta and ectopic gestation.

Hemorrhage as a sign of miscarriage, when very slight, may be controlled by rest in bed, suppositories of morphia and atropia, 3j. doses ffd. ext. of viburnum, or gr. iv. pill of solid extract. In more severe cases with abortion inevitable, cervical softening, dilatation, and the ovum separated, everything being aseptic, the cervical and vaginal tampon is to be recommended, to empty the uterus and secure firm retraction.

Through a Sims speculum with anterior lip of cervix fixed, carry strips of iodoform gauze into the cervical canal through the internal os, then pack anteriorly, posteriorly, laterally, and finally against the cervix, filling the whole vagina with gauze.

Clinically a prævia is where the placenta has an attachment in the lower zone and the cervix, from which it is detached during canalization. Before viability, the diagnosis made, with the fetus dead and implantation central, with hemorrhage, the indication is to empty the uterus. After viability, act with the occurrence of the first hemorrhage. It is not good obstetrics to allow the patient's strength to become exhausted by repeated or continued bleeding, not to speak of the nervous strain she sustains. Hemorrhage occurring and with the cervix closed we should tampon with iodoform gauze at the

end of eight to ten hours, and when the gauze is removed douche with an antiseptic. The cervix in most cases will admit one or two fingers. With this amount of dilatation turn by the Braxton-Hicks method, and bring down a foot, which acts as a most efficient tampon. This method, in my opinion, is superior to either the method of Barnes or the use of internal version.

In accidental hemorrhage from partial separation of a normally-placed placenta, rapid dilatation of the cervix is indicated manually, or if the portio vaginalis be effaced, the bloody method; then rupture the membranes, and deliver rapidly either by forceps or version. Remove the placenta immediately and tampon the uterus with iodoform gauze to control bleeding. Craniotomy may be resorted to if the fetus be dead or non-viable.

I condemn ergot in these cases before delivery, as it causes spasmodic action and tendency to the formation of stricture at lower segment.

PROF. MANUEL GUTERIER read a paper (in Spanish) entitled "A Comparison Between the American and European Pelvis. Practical Consequences from the Peculiar Mexican Pelvis."

SARAH H. STEVENSON, M.D., of Chicago, contributed an article entitled "A Study of Placenta Prævia, Especially the Causes of Hemorrhages."

DR. HUGH HAMILTON, of Harrisburg, read a contribution entitled "The Application of Graphics to the Fetal Heart Sounds," with a demonstration of the method advised and a consideration of its practical application in doubtful pregnancy.

In the discussion that followed DR. DE SAUSSURE, of South Carolina, asked the gentleman who read the paper on the Mexican pelvis if there have been any observations made in regard to the forms of the heads.

In answer DR. MANUEL GUTERIER said there is no corresponding deformity between the Mexican head and that of other nations, although there may be in the Mexican pelvis. The diameters of the head are of the usual dimensions. I would like to emphasize the fact that dimensions of the pelvis and the forms of the soft parts are peculiar to the Mexican pelvis, but there is nothing peculiar in the diameters of the fetal heads.

DR. DE SAUSSURE, of South Carolina, asked Dr. Stevenson if the hemorrhage of placenta prævia comes from veins.

DR. STEVENSON, of Chicago: I think we frequently have arterial hemorrhage, and I stated in my paper one case where it was almost direct. When the placenta is high, the uterine artery runs a very tortuous course, and when the placenta is placed low the arterial supply is almost direct from the uterus. There is one question I should like to ask Dr. Polak regarding the use of iodoform to any great extent, and if so used whether it does not cause iodoform poison.

DR. POLAK, of New York: My use of iodoform has been quite large; I have employed it in sixty-eight cases of hemorrhage. In six of these I have left over one-half dram, nearly sixty grains, of iodoform, and there was no absorption to cause any iodoform poison. The iodoform in those cases does not act directly, but is dissolved and simply acts as an antiseptic. It had really no direct effect, acting simply to keep the discharges back.

DR. HARRIS, of New Jersey, asked to what extent arte-

rial depletion of the mother by loss of blood may not cause fetal asphyxia, or whether such cases occur when there has not been arterial depletion of the mother. We have reason to believe that in cases of placenta prævia this is a very considerable factor in increasing the death-rate of children as well as to render them more likely to be stillborn.

DR. STEVENSON, of Chicago, thought that in fetal asphyxia the heart-beats would be accelerated at first, and would be retarded at the close. At death, heart-beats would occur more slowly. Asphyxia is certainly a lack of blood-supply to the nerves of the child. That at first would cause acceleration. The action of the poison around the heart would be certain to produce very rapid action, and at the close retard it.

DR. HARRIS, of New Jersey, asked to what extent incisions have been made in the cervix to facilitate labor.

DR. POLAK, New York, in reply said that the operation of incising is recommended by Dührssen. In the speaker's experience it has proved to be very successful.

DR. DEWEES, said that in his case he had used the lancet and chloroform, and that at this stage chloroform had always resulted in post-partum hemorrhage. I have been teaching that chloroform is not to be used until the head is through the os. If the patient drops off to sleep and the pains come on with strong regularity, in those cases in which we need immediate delivery in the interest of the mother and child, I think it is well to use the lancet.

DR. DEWEES, of Kansas, said that the cases in which he used chloroform are entirely different from those in which the lancet is used. I use the lancet when it is necessary to produce quick delivery. Chloroform produces an easy delivery, and there is no danger when the pains and contractions are strong and active and the patient in a healthy condition. Under these conditions I have given quite large doses. You will be surprised what good results it will bring immediately.

SECOND DAY.—SEPTEMBER 6, 1893.

"The Status of Obstetrics in General Practice," was the subject of the paper by DR. ELIZA H. ROOT, of Chicago. She asked why child-bearing is so often followed by health-ruining results.

The conditions which prompt the patient to seek advice of the gynecologist belong to one of two classes of causes or to both combined. I. Traumatism. II. Inflammations, due largely to septic infection at or during the lying-in period.

The causes which produce the conditions may be traced to ignorant and careless practice; (a) of the accoucheur, physician, or midwife, or of the patient herself, or in the care of the lying-in patient. The physician assumes the responsibility of the lying-in chamber without sufficient clinical training and experience. Carelessness and ignorance on the part of the patient frequently put the skill of the physician to a severe test. The physician will know nothing of a case of nephritis with albuminuria until called to a case of eclampsia, that with treatment and care might have been avoided. Constipation during gestation is a frequent source of danger to the lying-in period. A case proved to me how serious the consequences when the ignorance of the patient is combined with the ignorance and careless-

ness of the physician. It is the physician's duty to teach his patients the importance of seeking timely advice and to duly warn them of the consequences of not doing so; for in no branch of medicine will an accident or fatal outcome prove more disastrous to the physician. The surroundings and the nursing of the patient should not be left out of the physician's code of duty. The practice of paying one visit after delivery that prevails in some parts of our country is reprehensible.

DR. J. H. CHESTNUT, of Philadelphia, next considered the question of "The Induction of Premature Labor." The groups of cases whose circumstances may call for the operation for the induction of premature labor include: First, cases of contracted pelvis which would render labor at term dangerously difficult to the mother, to the child, or to both; second, cases of maternal disease which progressively endanger the life of the mother; third, cases in which in previous pregnancies the child has died in the latter weeks of gestation; fourth, cases of hopeless disease of the mother, for the sake of the child; fifth, cases in which the child is known to be dead; and, sixth, cases complicated by the presence of ovarian, bony or malignant tumors, or by atresia of any part of the normally distensible canal.

The relative number of markedly contracted deformed pelvis is very small; in a private obstetrical practice of more than twenty years the writer had met but one case with a conjugate diameter at the brim of less than two and one-half inches; but cases of lesser contraction where the same diameter measured from three to three and three-fourths inches, or where there appeared to be a slight degree of lessening in all diameters, were not so uncommon.

The writer believes that in cases of deformed pelvis where the antero-posterior diameter at the brim is from two and three-fourths inches to three and one-fourth inches, and in cases of justo-minor pelvis, where the same diameter is three and one-half inches—labor should be induced before term, when the conditions described are recognized in due time. The difficulty of diagnosis at the proper time is the obstacle to the more frequent employment of the operation in these cases.

DR. A. J. C. SAUNIER, of Chicago, next read a paper on "Aids to Easy Parturition."

Aids to easy parturition should be considered and their application begun early in life. Care is to be exercised in young women at the time of menstruation to prevent undue congestion and to secure free catamenial flow. After impregnation, diet may influence the amount of suffering undergone at the time of childbirth. All pelvic troubles, especially inflammations, should be corrected during the period of gestation, and we should abridge the first stage of labor by securing frequent and strong uterine contractions, by means of massage of the abdomen and digital assistance in dilatation of the os uteri.

In the ensuing discussion, DR. STEVENSON, of Chicago, said he should like to reinforce the arguments and statements of Dr. Root as to the number of so-called obstetricians and midwives in this country. The facts which were so well brought out in her paper, that obstetricians and midwives are not supervised here as they are in the old country, and the harm done to obstetrical science in this country by midwifery, presents a very

grave question. I think this body ought to take some measures to prevent the spread of incompetent midwifery among us. There are two things essential for the good of obstetrics: First a good obstetrician, and second, a thoroughly well trained nurse. It occurs to me that as an authoritative body we should at least use our influence against the licensing of careless or incompetent midwives.

DR. UPSHUR, of Richmond, Va., said that one of the trying evils of this day is carelessness in the attention of midwifery cases. I try to emphasize with my own patients the need of an early engagement for attendance, and I try to obtain as thoroughly as possible all information. I make it a matter of conscience to visit the patient repeatedly, and soon after the engagement obtain knowledge of all previous conditions—whether the patient has been a subject of dysmenorrheal trouble or not; as to her general health; profuse flow at the time of menstrual period; the patient's general habits, sleep, exercise, conditions of physical trouble, constipation, etc. I believe the secret of safely bringing forth the child is the attention paid to the mother. I am satisfied that the man who fails to watch carefully the condition of the kidneys, the existence of albuminuria, or of any small puffiness of the hands or feet, which would lead to trouble, or a tendency to persistent headache and wakefulness, will sometimes lose an excellent opportunity to prevent trouble when labor comes on. I agree very fully with Dr. Root as to the value of cleanliness. The patient should not receive visitors until she is in such condition as to admit of this without being fatigued. I am sorry to say that a large number of nurses are negroes, and they have certain ideas in regard to the management of the child which are hard to overcome, and very often with the utmost care the physician will find that something has been done to the detriment of the patient without his knowledge. It requires the utmost care and the most rigid scrutiny to see that our instructions are carried out. If this is not done, these meddlesome women practice their methods, and the patient will probably have to go through the rest of her life an invalid in consequence.

I had a case where a midwife used a large syringe upon every patient, producing septicemia and bad lacerations. Such treatment ought to be met with a term in the penitentiary. Any woman applying for a license for midwifery may get it for a small fee. This ought not to be encouraged. Often we are called to undo the ills which follow in the train of these meddlesome, inefficient midwives.

DR. H. HAMILTON moved that a resolution be passed to take some measures toward improvements in midwifery in this country.

The Chairman appointed as a committee to take charge of the matter, Drs. Root, Upshur, Chestnut, Stevenson, and Guterier.

DR. GUTERIER, of Mexico, continuing the discussion, said that in Mexico it was proposed that there should be a requirement of two years' preliminary education, and then three years of more technical education, requiring in all, a five-year term for education.

"The Mechanism of Labor," by JACOB CHASE RUTHERFORD, M.D., of Providence, R. I., was the next paper read.

The theory of the mechanism of labor, as advanced by all ancient and many modern obstetrical writers, is entirely without foundation. The ground taken that the parturient canal is curved cannot be maintained for a moment when we consider the anatomy of the parts, the changes that take place during pregnancy and the phenomena of labor. . . . The mechanism of labor, briefly, is as follows: In head presentations, occipito-anterior, the head descends in the axis of the uterus in a straight line, until it reaches the trough of the levator-ani muscle, when rotation begins; continuing to descend in the same line, it reaches the bottom of the trough, which is the floor of the pelvis. By this time rotation is completed, and now begins the hardest part of the labor, for the head having reached the floor of the pelvis, cannot go any further, but must change its direction and pursue a course at right angles with the one it has been following. This change in direction is brought about by extension of the head into the vaginal canal. As the head extends, the body descends, and by the time the head is fully extended it has passed the vaginal orifice, and the shoulders are at the utero-vaginal angle. They pass the angle by a lateral bending of the body and are followed by the hips and legs.

In occipito-posterior cases, labor is prolonged by the impossibility of further flexing an already fully flexed head, and the perineum has to be enormously distended before the head can be delivered.

In face-cases mento-posterior delivery is impossible because the head cannot be further extended, and the stiff, straight fetal body cannot be bent around the angle. A knowledge of the mechanism of head-cases embraces a knowledge of the mechanism of other presentations.

The deductions to be drawn from the above theory are: first, the parturient canal is angular, not curved; second, when the presenting part has reached the bottom of the trough in the pelvic floor, rotation is quite complete; third, flexion and extension take place at the utero-vaginal angle; fourth, in the high forceps delivery traction should be made in the line of the uterine axis, and in the low forceps, delivery in the line of the vaginal axis.

"Obstetrics Among Negroes of South Carolina," was an interesting communication by DR. P. GOURDIN DE SAUSSURE, of Charleston. The negress differs from her white sister. I found the average weight of 57 female children at birth to be 7.50 pounds (48 boys, 8.25). Menstrual life begins earlier. From several hundred observations I estimate it to be about the thirteenth year. Thirty-three cases, where the age was certainly fixed, gave 13.10 as the average; this is a full year earlier than Emmet's "average menstrual age," 14.28. A possible explanation of this precocity may be the early use of the sexual apparatus. The childbearing period is longer with the negro than the white, for the average age at the menopause is about 49. In 43 cases, where the age could be proved, I found it to be 48.6; more extended observations, I believe, would give us 49+, for I have delivered several who claimed to be over 52; and in a midwife's book I found records of three delivered at 53. On this point the following figures speak: 19 primiparæ gave us an average age of 18.2, and 7 multiparæ having twelve or more children each had an average age of 38.8.

As to the menstrual flow its duration was 4.2 days in 53 observations; the amount, however, is less than in the whites. As a rule, the negro is remarkably free from menstrual irregularities. Amenorrhea, dysmenorrhea, and menorrhagia are rare amongst them, and when found are almost always due to anatomical defects or lesions. The mulatto is an exception to this rule. The negro is more fruitful than the white—that is, their families are larger; 107 observations on this point give us 5.8 children to each. Of the 107, 19 were primiparæ and 7 multiparæ, with 12 or more full-term pregnancies. The ratio of twins was in 14,320 colored births, 9.63 per thousand, and in 7140 white births, 9.52 per thousand.

The negro is very free from the diseases of pregnancy. I have in eighteen years never seen a case of hyperemesis, icterus, or chorea; eclampsia seems to be an exception, and in the last five years has become more frequent. In 11,074 colored pregnancies I found 47 deaths from eclampsia, while in 6044 white pregnancies I found 19 deaths from the same cause. Estimating one death to two recoveries, I find that the ratio of cases to pregnancies is more than 1 to 500, Galabin's and Kleinwacher's estimate, but not much over Parvin's, 1 to 300. As the negro does not take into consideration an abortion occurring before the fourth month, it is hard to speak on this subject. In 37 patients I found but 3 who had not aborted, and the other 34 had had between them 80. In five years there were reported to the board of health 251 abortions in negroes, and only 84 in whites. These figures do not show the hundreds of abortions of an earlier date than the fourth month. Causes of abortions are chiefly syphilis, from which 75 per cent. of the Africans of Charleston suffer either by inheritance or acquisition. Other causes are medicines taken for the purpose of producing the result.

Labor in the negro is a simple act begun and finished without fear. The nervous disturbances so common in the whites are never seen in the negro. Their labors are shorter; the average duration, in primiparæ, in 13 cases was 6.9 hours; in 8 multiparæ, 2.15; but aside from looking on the act as a purely physiological one there is this fact to be borne in mind: the African pelvis is larger. These measurements, external pelvimetry, speak for themselves—17 cases:

Circumference	92
Between spines, antero-superior	26
" widest parts	29
" trochanters	33
External conjugate	21

The negro is very free from puerperal fever or septicæmia. In 14,600 pregnancies, 14,358 at term, I found but 57 deaths from puerperal diseases, and this amongst a race that has not an idea of cleanliness.

"Uterine Compression," by DR. JOSÉ MARIA DE ITA, of Pueblo, Mexico, was the next communication:

The author, who for the last ten years has been in charge of the Maternity Hospital of the city of Pueblo, gives credit to Dr. Juan Maria Rodriguez for having first introduced and practised uterine compression in Mexico. He is perfectly satisfied of its great utility as an aid in the production of uterine contraction. He practises the operation in the following manner:

The woman lies flat on her back, the operator stands by her side, extends his arms, and presses the hands

with the two thumbs together over the abdomen immediately above the fundus uteri; at first only slight digital compression is made, slowly increasing the force, imitating the rhythmical contraction of the uterus. It is necessary sometimes, he says, to continue the pressure steadily in order to terminate the delivery at once.

The indications for uterine compression he groups thus: 1. In all cases of uterine inertia. 2. To help the traction made with the forceps. 3. To expel the trunk when the head of the child has already been born, either by Nature's forces or by traction; in this last event, with the uterine compression one avoids the necessity for further traction on the head, or inserting the finger in the axilla to draw out the rest of the body. 4. To hold the head bent after the expulsion of the trunk, and thus helping to its birth, in a case of feet-presentation. 5. To overcome the resistance of the perineum and avoid the application of forceps. 6. To fix the head in the superior strait in cases when the application of delivery forceps are necessary, or when the use of craniotomy forceps become a necessity. 7. To facilitate the expulsion of the placenta in cases of hemorrhage. 8. To aid the uterus in throwing out the clots retained in its cavity, should a secondary hemorrhage take place.

The author says that in case the uterus loses the power to contract, this mechanical compression will take its place.

When the accoucheur has no assistant with him, he ought to practice the operation with only one hand aided by the forearm, and the other hand used to support the perineum.

"A Method of Performing Rapid Manual Dilatation of the Os Uteri, and Its Advantages in the Treatment of Placenta Prævia," by PHILANDER A. HARRIS, M.D., of Paterson, N. J., was read by the author. A history of eight successful cases was given embracing the author's entire experience in the management of placenta prævia. The method of dilatation was shown, and is to be illustrated in a published report by the aid of ten photo-engravings. The undilated os in placenta prævia, can, under chloroform or ether anesthesia, be enlarged to a circumference of ten to eleven inches in from fifteen to twenty-five minutes; thus rendering it easily possible to effect rapid delivery of child without waiting for the development of labor, or of employing more tardy and inefficient methods of dilatation to any degree desired by the operator.

In the discussion, DR. BRIGGS, of New York, said: Dr. Harris's theory is, I think, the best way in which we can treat placenta prævia. As soon as we can in any way dilate the cervix we ought to do so, because in that way we save many lives. That was made clear years ago by Hirsch. Referring to the rings which the doctor has presented, I would say that they are certainly a very ingenious device. Now everybody knows that we have greater strength in our flexor muscles than in any other muscles. Admitting all this, there is only one thing which might be a little adverse. These springs are composed of a series of rings, which are rather sharp.

DR. HARRIS: These coils represent the os uteri. There is nothing but the hand employed in this operation.

DR. BRIGGS: I think it is an excellent way of dilating the cervix.

DR. HARRIS: I am a little sorry that some of the doctors present did not bring up the Braxton Hicks method.

THIRD DAY—SEPTEMBER 7TH.

"Recent Surgical Advances and their Relation to Conservative Obstetrics," by DR. W. REYNOLDS WILSON, of Philadelphia, was then presented. In view of the fact that the science of obstetrics is the most stable of medical sciences in which fixed mechanical laws largely determine both the event and the conduct of parturition, the influence of modern surgery modifying obstetrical practice is unexpected. This influence is observed in the present treatment of abortion, ectopic gestation, dystocia, in contracted and deformed pelves, and septicemia.

The operations which have become recognized obstetrical procedures in these conditions are: in abortion, curetting in order to remove every trace of decidua tissue, irrespective of symptoms of retention; in ectopic gestation, the removal of the gestation sac as soon as the diagnosis has been established, irrespective of the viability of the fetus; in impeded labor, Cæsarean section and symphysiotomy; in septic infection, curetting and drainage, by means of gauze; celiotomy for peritonitis, and supra-vaginal hysterectomy for lymphatic infection of the mucosa.

Surgery deserves the lasting praise of the profession for the scientific treatment of tubal pregnancy, no surgical procedure being too radical for this condition, but of all these procedures the active treatment in abortion and in septicemia and the substitution of symphysiotomy for the forms of treatment formerly recognized in dystocia from contracted pelvis, are to be questioned.

DR. HENRY J. GARRIGUES, of New York, read a paper on "Symphysiotomy." When the symphysis and subjacent ligaments are cut, the limbs bent, and the iliac bones pulled apart, a separation of 7 cm. (two and three-quarter inches) between the ends of the pubic bones is easily obtained without injury to the ilio-sacral joints. The head enters into this gap, and all diameters of the pelvis are considerably increased. The distance between the center of the promontory and the end of the pubic bones, at the safe distance of 7 cm. (two and three-quarter inches), gains 14 mm. (over one-half inch), the other diameters from 17 to 35 mm. (three-quarters to one and one-half inches).

Symphysiotomy is indicated in a flat pelvis with a true conjugate ranging between 67 and 88 mm. (two and five-eighths to three and one-half inches), but it is difficult below 7 cm. (two and three-quarter inches). In a generally contracted pelvis the upper limit may be extended to 10 cm. (four inches), and we should cautiously approach the lower limit. Other indications, with which it has been performed, are pelvic tumor, mento-posterior face presentations, if the chin cannot be rotated forward, occipito-posterior vertex presentation with impacted head; and it has been proposed in cases of absolute coarctation of the pelvis (*i. e.*, below 5 cm.—two inches) with dead child, in order to facilitate craniotomy and embryotomy. The sacro-iliac articulations must be movable. There are two chief methods—the subcu-

taneous (Morisani's) and the open (Pinard's). The child may be left to be expelled by uterine contractions, or removed with forceps, or turned and extracted. Considerable lesions of soft parts have occurred even in the hands of first-class operators. In many cases the hemorrhage has been profuse and sometimes difficult to check. Most children are more or less asphyctic, and in some there has been fracture of the skull. In lying-in hospitals and private practice of specialists it should take the place of craniotomy on the living child and induction of premature labor, in which the infantile mortality is over 43 per cent.

Cæsarean section should be limited to cases that lie beyond the domain of symphysiotomy. Symphysiotomy has several times been successfully performed twice on the same woman.

DR. JOHN P. UPSHUR, of Richmond, Va., next discussed "The Therapeutic Application of Chloroform in Labor."

"Induction of Labor and Accouchement Forcé in the Prophylaxis of Eclampsia," by DR. CHARLES JEWETT, of Brooklyn, N. Y., was the next paper read.

Whatever room there may be for difference of opinion with reference to the etiology of child-bed eclampsia and the nephritis of pregnancy, it is impossible to lose sight of the fact that the ultimate cause of the trouble is the presence of the child *in utero*. So long as the cause remains, our resources either for the treatment or prevention of puerperal convulsions are at most an uncertain reliance, and too often prove wholly futile. A pregnancy-nephritis once established, the kidneys never regain their normal condition while the pregnancy continues. Dietetic, diaphoretic, and cathartic measures are of great value as temporary expedients, but they do not cure.

The extra tax upon the crippled kidneys increases rapidly in the later weeks of gestation, and the danger grows with the growth of the child. The woman is never free from the possibility of a sudden explosion of uremic symptoms. On the occurrence of convulsions the gravity of the condition is enormously increased, and with each succeeding attack it becomes less and less amenable to treatment. After labor, on the other hand, the nephritic symptoms subside, and prompt recovery is the rule. Convulsions in most cases cease with the birth; the attacks seldom begin the post-partum period, and in any event they yield more easily to ordinary remedial measures in the puerperal than in the pregnant or parturient woman.

The chief desideratum, therefore, in the prophylaxis of puerperal eclampsia is the evacuation of the uterus. The writer believed that under modern methods a more aggressive policy is justifiable in the prevention of eclampsia than is generally pursued. It is difficult to formulate definite rules, but in general after the full period of viability little reliance should be placed on other than obstetric measures. In the presence of any but the milder forms of nephritis, immediate and rapid termination of the pregnancy offers the best prospect for both mother and child. The indication is especially urgent in the last month of gestation, when the child has little to gain and the mother frequently much to lose by delay.

Under the methods formerly employed the induction

of labor was a difficult and tedious undertaking. With the intra-uterine injection of glycerin, recently introduced by Pelzer, uterine contractions may be set up at will and the birth terminated with rapidity and safety.

Labor begins immediately, as a rule, and is actively established within two hours. The intra-uterine injection of glycerin acts not only to inaugurate the pains, but in greater or less degree to maintain them. Its effect in many cases seems to persist to the close of the third stage if well retained. To act at best advantage the glycerin must be carried high up toward the fundus, must be widely diffused between the membranes and the uterine wall by gradual injection, and its too rapid escape prevented by keeping the patient in the latero-prone position. In many cases no further interference is called for. In imminent danger of convulsions, if the labor is not promptly terminated, it should be completed by manual dilatation of the cervix under chloroform, and resort to forceps or version. Under a rigid asepsis, and with avoidance of lacerations, accouchement forcé is a safe and conservative procedure. Manual dilatation should not be undertaken before the supra-vaginal portion of the cervix is obliterated. In simple cases it is a harmless interference which may save hours of labor and continued danger. In difficult cases with a rigid cervix the operation is even more urgently indicated and is safe, provided sufficient care is used. From ten minutes to two hours will usually suffice to complete the dilatation and terminate the birth. The total length of labor will seldom exceed twelve hours; in emergency, may be reduced to five or six.

The last paper read was entitled "Contributions to the Study of Puerperal Septicemia," by DR. ANTONIO JOSE AMADEO, of Maunabo, Porto Rico. It was a résumé of the twenty years of obstetrical experience of the author in the town of Maunabo, island of Porto Rico. He says that until lately a physician was there very seldom called to attend a case of confinement, and that puerperal infection is much more frequent in the towns, on account of bad hygienic conditions, than in the country. He holds the opinion that women of a lymphatic temperament are more liable; chronic metritis and leucorrhea are also contributing factors; anemia, and all the manifestations of lymphatic cachexia are unfavorable signs of the prognosis.

In regard to diagnosis, he says that paludal fevers sometimes make their appearance immediately after parturition, but sulfate of quinin settles the doubt. Sleeplessness, nervous disquiet, and ill-smelling discharges are alarming symptoms.

His plan of treatment consists in local antiseptics to reduce the hyperthermia, to open and disinfect abscesses, sustain the vital forces, and combat peritonitis should it make its appearance.

NEWS ITEM.

The American Orthopedic Association will hold its seventh annual meeting at St. Louis, September 19, 20, and 21, 1893.

The following program has been arranged: "The Embodiment of an Idea," Presidential Address, by Dr. A. J. Steele, of St. Louis; "Tuberculosis and the Mind

Cure," by Dr. Ansel G. Cook, of Hartford; "A Case of Fragilitas Ossium, exhibiting over One Hundred Broken Bones," by Dr. Wallace Blanchard, of Chicago; "Congenital Deformities," by Dr. De Forest Willard, of Philadelphia; "A Case of Deformity of the Lower Limbs, with Spina Bifida," by Dr. William J. Taylor, of Philadelphia; "Congenital Absence of Both Clavicles, with Rotaro-lateral Curvature—Specimen," by Dr. A. J. Steele, of St. Louis; "A Case of Congenital Dislocation of the Hips—Patient," by Dr. A. J. Steele, of St. Louis; "Some of the Uses of Continued Extension," by Dr. Henry G. Davis, of Everett; "Historical Notes of the Use of Traction in Diseases of the Joints," by Dr. A. B. Judson, of New York; "The Value of Traction in the Treatment of Joint Disease," by Dr. H. L. Taylor, of New York; "The Value of Traction in Hip Disease as Investigated by Experiment," by Dr. E. H. Bradford, of Boston; "Exhibition of New Traction Mechanism for Hip Splints, with Remarks," by Dr. L. A. Weigel, of Rochester; "A Modification of the Long Traction Splint for Hip Disease, Designed to Provide a Light Apparatus for Little Children," by Dr. Augustus Thorndike, of Boston; "The Question of Excision of the Hip-joint for Tubercular Disease, and the Results of the Operation," by Dr. Harry M. Sherman, of San Francisco; "Cases of Osteo-sarcoma Simulating Tuberculous Hip-joint Disease," by Dr. A. J. Gillette, of St. Paul; "Acute Epiphysitis," by Dr. E. G. Brackett, of Boston; "High Temperature in Chronic Joint Disease," by Dr. Robert W. Lovett, of Boston; "Treatment of Abscesses and Sinuses," by Dr. A. M. Phelps, of New York; "Treatment of Abscesses Caused by Diseased Joints," by Dr. H. G. Davis, of Everett; "The Etiology of the Deformities of Knee-joint Disease," by Dr. A. M. Phelps, of New York; "The History of the Treatment of Tumor Albus of the Knee," by Dr. J. D. Griffith, of Kansas City; "A Contribution to the Treatment of White Swelling of the Knee," by Dr. A. B. Judson, of New York; "The Value of Fixation in Knee Disease," by Dr. George W. Ryan, of Cincinnati; "The Value of Traction in Tumor Albus of the Knee," by Dr. E. H. Bradford, of Boston; "A Splint for Making Traction in the Line of Deformity in Knee-joint Disease," by Dr. Robert W. Lovett, of Boston; "Exhibition of the Ideal Knee Splint, with Remarks," by Dr. John Ridlon, of Chicago; "Exhibition of a New Knee Splint—its Action and Advantages," by Dr. A. E. Hoadley, of Chicago; "The Operative Treatment of Knee-joint Disease," by Dr. De Forest Willard, of Philadelphia; "Excision of the Knee in Young Adults—a Study of Twenty-nine Cases," by Dr. C. L. Scudder, of Boston; "The Advantages of the Gradual Reduction of Flexion of the Knee due to Tumor Albus," by Dr. Augustus Thorndike, of Boston; "Forcible Correction of the Deformities Resulting from Knee-joint Disease," by Dr. J. E. Goldthwait, of Boston; "Internal Derangement of the Knee-joint," by Dr. L. A. Weigel, of Rochester; "The Mechanical Treatment of Osteo-arthritis of the Knee," by Dr. H. L. Taylor, of New York; "The Treatment of Injuries in and about the Knee by Massage," by Dr. Benj. Lee, of Philadelphia; "The Mechanical Treatment of Light Cases of Knock-knee," by Dr. Florian Beely, of Berlin; "The Manual Treatment of Bow-legs and Knock-knee," by Dr. Samuel Ketch, of New York; "Observations upon

the Etiology and Treatment of Scoliosis," by Dr. A. E. Hoadley, of Chicago; "The Treatment of Lateral Curvature by Pressure Correction and Gymnastics, with Lantern-slide Illustrations," by Dr. L. A. Weigel, of Rochester; "Exhibition of the Paper Jacket, also of an Apparatus for Recording Rotation in Lateral Curvature," by Dr. L. A. Weigel, of Rochester; "Cast Correction in Connection with Jacket Construction," by Dr. Bernard Bartow, of Buffalo; "Demonstration in the Making of Ideal Leather Splints," by Dr. A. J. Steele, of St. Louis; "Observations on Pott's Disease, with Particular Reference to the Principles of Treatment and their Application," by Dr. Royal Whitman, of New York; "The Cause of Flat-foot," by Dr. Newton M. Shaffer, of New York; "A Double-lever Stretching Apparatus for Club foot," by Dr. T. Halsted Myers, of New York; "Bone Operations for the Correction of Club-foot, based upon an Analysis of 293 Operations by 100 Operators," by Dr. H. A. Wilson, of Philadelphia; "A Case of Adult Club-foot," by Dr. C. C. Foster, of Cambridge; "A Case of Club-hand, with Result of Operation," by Dr. R. H. Sayre, of New York; "Exhibition of a Splint-opener for Plaster-of-Paris Splints, also other Simple Devices," by Dr. Harry M. Sherman, of San Francisco; "Exhibition of an Orthopedic Bed," by Dr. L. A. Weigel, of Rochester; "Exhibition of the Improved Stretcher Splint."

BOOKS AND PAMPHLETS RECEIVED.

Prospectus of the London Post-Graduate Course. Fourth Year. Winter Term, 1893.

Bureau of Education. Circular of Information No. 2, 1892. Benjamin Franklin and the University of Pennsylvania. Edited by Francis Newton Thorpe, Ph.D. Washington: Government Printing Office, 1893.

Fifty-third Annual Announcement of the Missouri Medical College, Session 1893-94, and Catalogue of Session 1892-93. St. Louis, Mo.

Functional Exotropia. By Howard F. Hansell, M.D. Reprinted from the Annals of Ophthalmology and Otology, July, 1892.

Reactions. By F. A. Flückiger. Detroit, Mich: George S. Davis.

Annual Address of the President of the Brainard Medical Society. By W. A. Gordon, M.D. Reprinted from the Milwaukee Medical Journal, 1893.

Six Months' Medical Evidence in the Coroner's Court of Montreal. By Wyatt Johnston, M.D., and George Villeneuve, M.D. Reprinted from the Montreal Medical Journal, 1893.

A Case of Mediastino-pericarditis in a Child; Secondary Empyema; Operation; Death. By William A. Edwards, M.D. Reprinted from the International Medical Magazine, 1893.

The Diagnosis of Renal Insufficiency. By Allen A. Jones, M.D. Treatment of Renal Insufficiency. By DeLancey Rochester, M.D. Reprinted from the New York Medical Journal, 1893.

The Advantages of the Extension of the Head during Anesthesia and other Conditions. By Cephas L. Hard, M.D. Reprinted from the Southern California Practitioner, 1893.

The Prevention of Disease. The Annual Address of the President of the Buffalo Academy of Medicine. By DeLancey Rochester, M.D. Reprinted from the Buffalo Medical and Surgical Journal, 1893.

Missouri State Medical Directory. Published by the Medical Fortnightly. St. Louis, 1893.

The Pharmacopoeia of the United States of America. Seventh Decennial Revision (1890). Published by the Committee of Revision. Philadelphia: J. B. Lippincott Company. Agents: P. Blakiston, Son & Co., 1893.